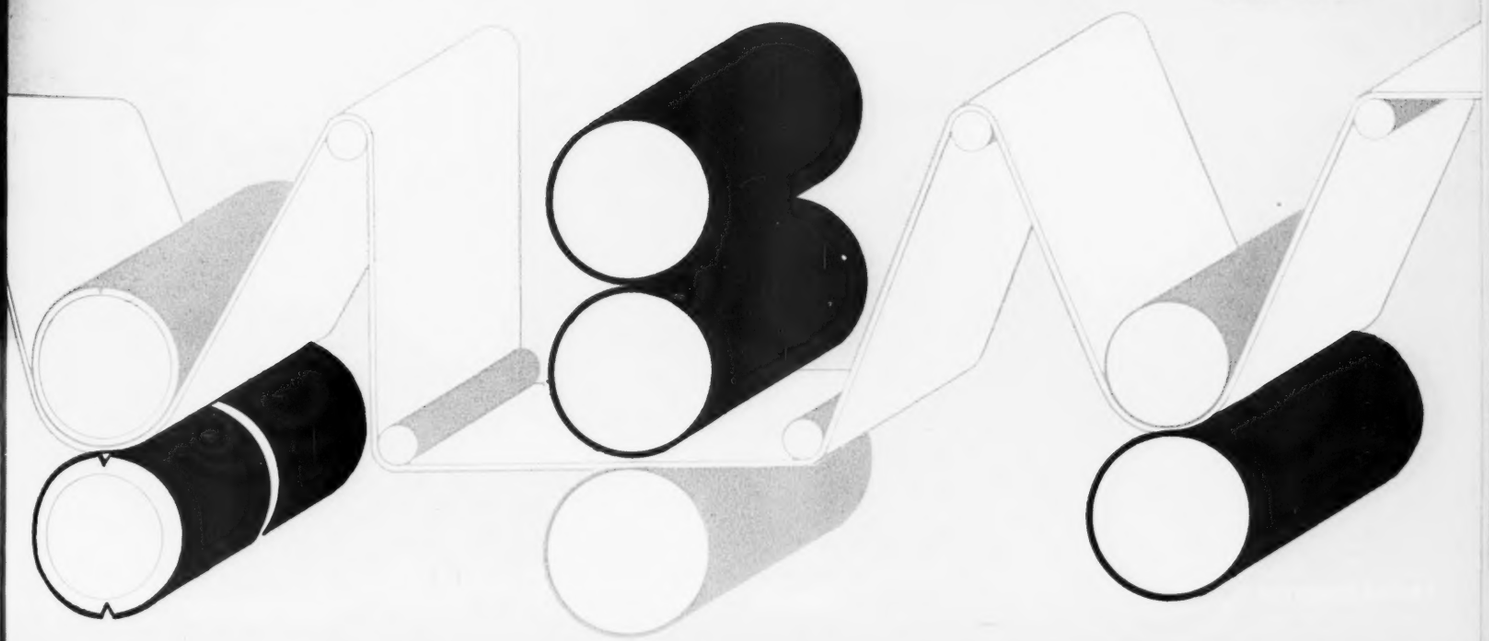
Printing Equipment

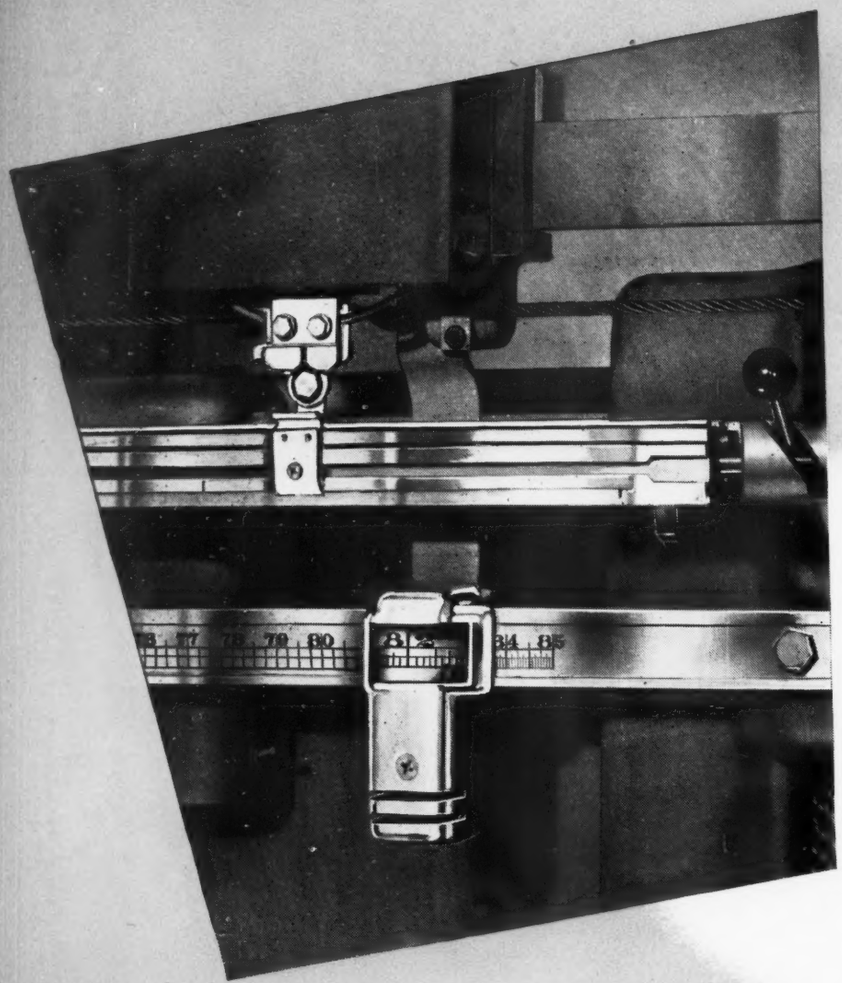
Engineer

MAY 1947



NOW . . . A LINE OF PAPER CUTTING MACHINES WITH

Even Faster Automatic Spacers



That's why Trimming is SPEEDIER...SURER...

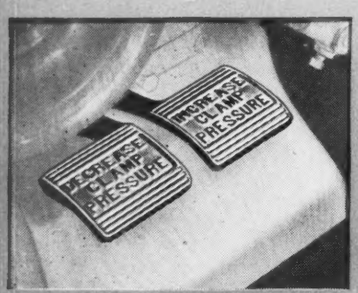
WITH A

Seybold "Sixty"

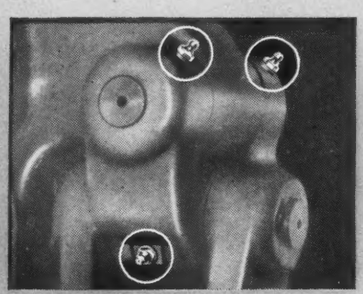
Smoothly, rhythmically—even faster and more accurately than ever before—the new Seybold "Sixty" Auto-Spacers automatically move heavy piles of stock into position for one cut after another. Makes it possible to cut more reams of paper per day.

The stops for several different jobs can be set at one time, on one spacer bar —with absolute assurance that, as these jobs come up again, they will be trimmed *exactly* as before.

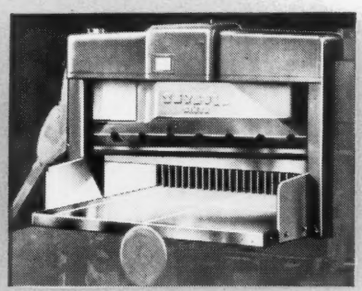
And when, to this kind of time saving, you add these advantages: Faster adjustments; More convenient lubrication; Better illumination; Traditional Seybold precision and ruggedness — this new Seybold Auto-Spacer is *really* worth looking into.



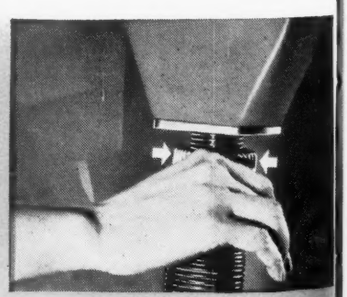
CONTROLLED BY FOOT PEDALS: A simple pumping motion changes clamping pressures instantly. No tools are needed. Saves time. Saves energy. A shadow gauge registers the pressure reading.



EASILY LUBRICATED: Zerk fittings are provided for cleaner, easier, more permanent lubrication. Lubrication points are out in the open, encouraging more thorough lubrication.



FLOODLIGHTED TABLE AND GAUGE— MAGNIFIED MEASURING BAND: Less operator fatigue. Greater safety. Less chance for errors. Greater production of more accurately-trimmed work.



SIMPLE, QUICK KNIFE ADJUSTMENT: A turn of the knurled collar on pull bar adjusts knife to cutting stick. No tools are necessary. Self-locking. Adjusts to the thickness of one sheet.

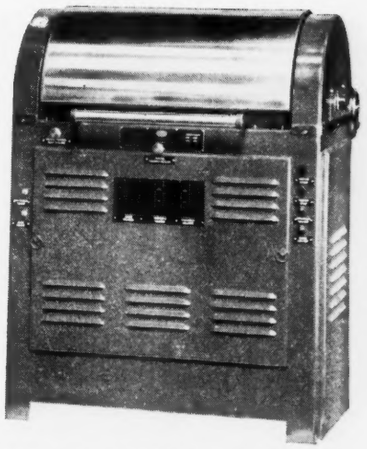
HARRIS-SEYBOLD

Harris-Seybold Company • General Sales Offices, Cleveland 5, Ohio

HARRIS PRESSES • SEYBOLD MILL TRIMMERS AND AUTO-SPACERS • OTHER GRAPHIC ARTS EQUIPMENT

Backed up by the world's largest and most highly-skilled, factory-trained paper cutter service organization.

Preferred—Because They Can Produce!



STA-HI MASTER FORMER

Sure—they're fine looking pieces of machinery, the Sta-Hi Master Former and the Premier Rotary Shaver . . . Sleek, trim, streamlined, they add a touch of mechanical "glamor" to any plant . . . But progressive printing executives buy them, not for their appearance, but because they deliver the goods . . . The Master Former processes dry mats for casting rotary press printing plates better than any comparable machine . . . The Premier does a precision, all-around job of flat shaving that's hard to beat . . . Don't take our word for it—just ask the men who operate them!

PREMIER ROTARY SHAVER

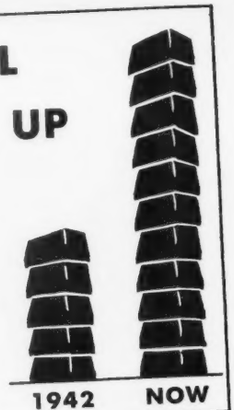
STA-HI CORPORATION

1020 Crocker Street **Los Angeles 21, Calif.**

Here's Why

MONOMELT Can SAVE YOU MORE

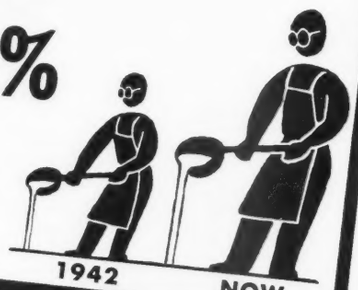
TYPE METAL COSTS ARE UP 115%



MONOMELT
makes metal last longer

MONOMELT
eliminates furnace melting and pigging labor

LABOR COSTS ARE UP 36%



At approximately 23c a pound, *you can't afford to waste type metal* by burning the "heart" out of it in a melting furnace. And with labor at any price, furnace melting and pigging metal are costly . . . and unnecessary.

LET MONOMELT HELP YOU SAVE MONEY

MONOMELT, the single melting system, eliminates the old-fashioned, wasteful metal furnace . . . lets you employ your furnace man at *productive* work.

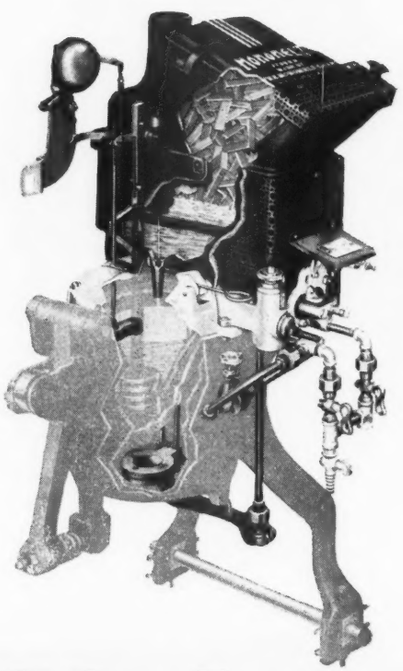
MONOMELT fits on your type-casting machine. You throw old slugs and metal sweepings directly into the MONOMELT crucible. Metal is melted, cleaned and fed into machine pot at proper temperature.

MONOMELT reduces drossage and metal waste to a minimum . . . keeps metal in balance longer . . . increases machine production . . . saves time and labor.

MONOMELT PRICES ARE STILL LOW!

While type metal and wages have soared, a MONOMELT unit costs you only 12% more than it did 4 or 5 years ago. MONOMELT is your key to composing room savings. Install it now!

WRITE TODAY for more details.

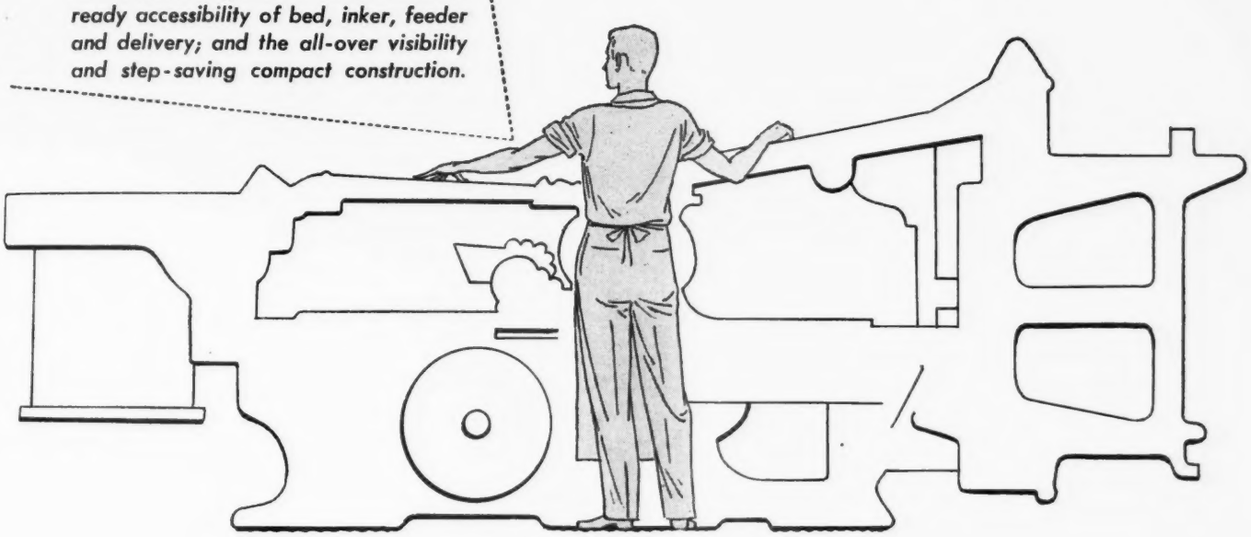


THE MONOMELT CO., Inc.

1611 N. E. POLK STREET MINNEAPOLIS 13, MINNESOTA

CONTROL

Scale drawing showing man of average height (5'8" by insurance statistics) beside 27x41 Miller Major Automatic. Notice the ready accessibility of bed, inker, feeder and delivery; and the all-over visibility and step-saving compact construction.



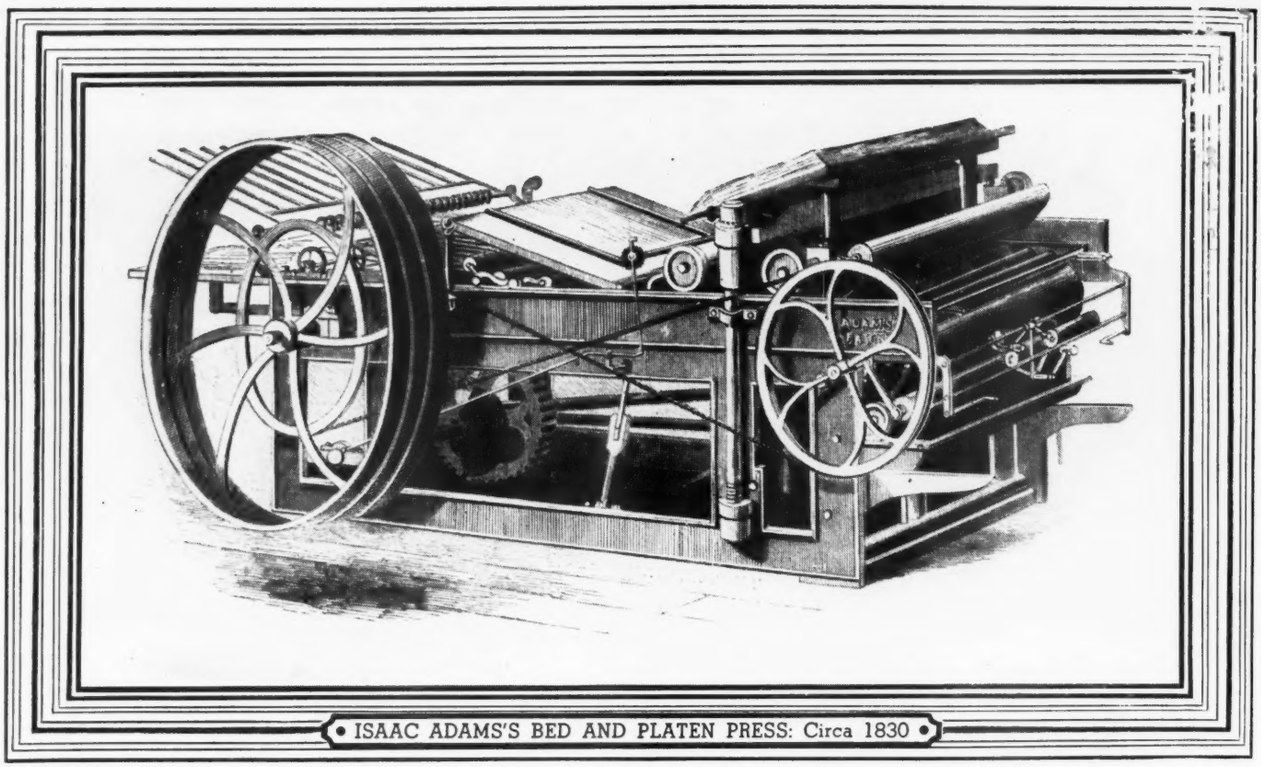
Literally, at your finger tips.

Stand at center of a 27 x 41 Miller Automatic. Notice how you can look upon every operation of the press — how, with two or three steps either way, you can reach and control feeder, press and delivery. Form, sheets, inker are all within sight and control. Principal lubrication is automatic.

A stop-watch check will reveal how Miller Automatics can take up to 25% less time to set and adjust than other presses of similar sheet size. Because less time is required on adjustments, the Miller operator can pay more attention to delivering a better product.

If you want to see how compact Miller integral construction can save valuable floor space too, for your pressroom, send for a Miller Floor Plan and Layout Kit. No obligation.

MILLER PRINTING MACHINERY CO., PITTSBURGH 12, PA.



• ISAAC ADAMS'S BED AND PLATEN PRESS: Circa 1830 •

EVEN WHEN "1,000 IMPRESSIONS AN HOUR" WAS CALLED FAST

SAM'L BINGHAM'S SON MFG. CO. rollers were giving printers "more mileage"

When the cylinder press was still considered "impractical" and most printers put their confidence in the "flat pressure" method, the bed and platen press pictured above was the highest development in printing machinery.

Designed by Isaac Adams of Boston in 1830, thousands of presses of this general type were manufactured. Many were still in use well after the turn of the century.

Delivering 1,000 impressions an hour, it was a vast improvement upon the 150 impressions an hour possible with the back-breaking Washington hand press.

In those early days of printing progress, SAM'L BINGHAM'S SON MFG. CO. was working closely with the infant graphic arts industry to develop better basic methods.

Today, with the aid of modern technology, SAM'L BINGHAM'S SON MFG. CO. carries on continuous research to meet the complex requirements of present-day needs.

SAM'L BINGHAM'S SON MFG. CO.
MANUFACTURERS OF
PRINTERS' ROLLERS
LITHO-OFFSET ROLLERS

Through any one of 16 conveniently located factories, you know you can rely upon SAM'L BINGHAM'S SON MFG. CO. for "the right roller right away."

THERE'S A FACTORY NEAR YOU:

ATLANTA 3	DES MOINES 2	KALAMAZOO 12	OKLAHOMA CITY 6
CHICAGO 5	DETROIT 10	KANSAS CITY 6	PITTSBURGH 3
CLEVELAND 14	HOUSTON 6	MINNEAPOLIS 15	ST. LOUIS 2
DALLAS 1	INDIANAPOLIS 2	NASHVILLE 3	SPRINGFIELD, O.

1847-1947
ONE HUNDRED YEARS OF ROLLER MAKING

PRINTING EQUIPMENT *Engineer*

Volume 74 Number 2

A technical publication for the mechanical executive responsible for printing production, equipment and supplies in the commercial, magazine, private plant and daily newspaper field.

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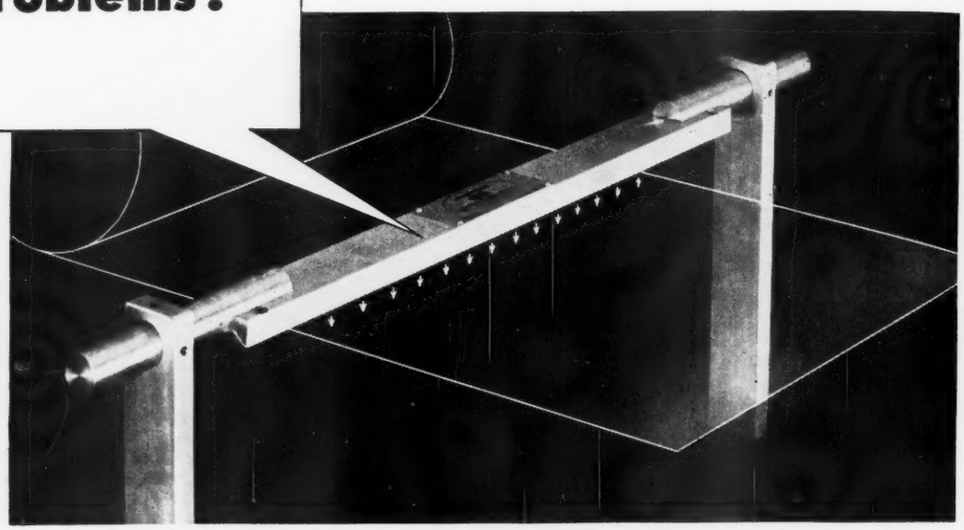
Will this reduce YOUR static problems?



Read what it's doing for MILPRINT

Here are excerpts from the letter above, by C. K. Billeb, General Works Manager of Milprint, Inc., Milwaukee:

"On sheeters, or sheet-fed equipment, the Ionotron bar eliminates virtually all troubles caused by static. The bar should be mounted so that the sheet passes under it just before shooting into the jogger table. Another bar mounted across the web as it enters the cutter, or across the sheet travel as it enters the first operation, will serve to prevent plugging, faulty position, and other static worries.

"On rotogravure printers, the Ionotron can be safely used because it is explosion-proof. One bar across the web at each color unit keeps static eliminated sufficiently to prevent static fires and 'hugging' over rollers."

The Ionotron Static Eliminator* reduces static charges in paper, foil, fabric, and other materials. It is especially valuable in the printing of acetate, cellophane, or lightweight stocks. Employing alpha radiation to "bleed off" static charges, the Ionotron is continuously and permanently effective. It requires no power connection, and there's no operating cost! Units can be furnished in any length required for rotary, flat bed, offset, or roto presses and for various types of bindery equipment.

With the Ionotron, sheet control is improved in feeders. Paper delivers properly. Jogging becomes uniform. And often presses can be run at higher speeds with less waste. To find out what the Ionotron can do for *your* shop, mail the coupon below.

IONOTRON

US RADIUM

STATIC ELIMINATOR

**Trade-mark Reg. U. S. Pat. Off.*

SEND COUPON FOR SPECIFIC INFORMATION!

Dept. H9, U. S. Radium Corp.
535 Pearl Street, New York 7, N. Y.

I want to know how the Ionotron Static Eliminator can solve static problems in my shop. This inquiry does not obligate me in any way.

Name_____ Title_____
Company_____
Address_____
City_____ State_____
Type of press_____ No._____
Max. web or sheet size_____
Type of delivery_____
Type of static eliminator now used_____

With the Ludlow compositors can readily produce composition for a wide variety of requirements

Dependable Production *with the* LUDLOW

Users of Ludlow know from experience that with reasonable care their equipment should keep on producing slug-cast job and display composition almost indefinitely . . . Ludlow dependability is not accidental—it is "built in." Simplicity of design and durability of mechanism make for trouble-free operation that results in profitable production . . . Ludlow operation is so simple that a compositor will readily learn to produce composition for a wide variety of requirements. His proficiency also increases as he goes along, taking advantage of inherent short-cuts and simplified practice possible with no other system . . . Then, too, he finds that with the Ludlow he has a practically unfailing type supply sufficient for the largest catalog or publication or the smallest commercial job . . . Utilize manpower effectively, and obtain dependable production with Ludlow reliability of performance. Let us tell you more about it.

LUDLOW TYPOGRAPH COMPANY · **2032 Clybourn Avenue, Chicago 14, Illinois**

Contributions to newspaper production

Perhaps I can take this piece of pewter... and cover it with some substance that will react to light ... and if I put an engraving over the metal... perhaps... but non, monsieur—it will not work. Still, I am sure... I have almost the right idea...

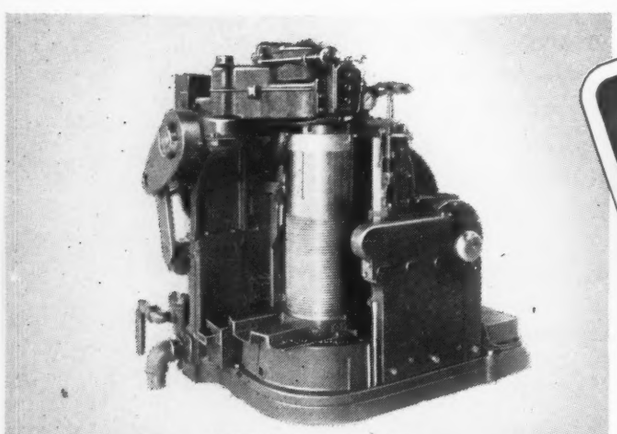
So mused the Frenchman, Joseph Nicéphore Niepce, as his mind seethed with ideas—with plans for a boat propelled by motor power, for a process that was later to be perfected as photography, for an indigo pastel dye, for so many things he must find time to accomplish.

And finally, in 1813, Niepce discovered the way to coat a metal plate with asphalt, expose it to sunlight under the print of an engraving, dissolve the parts shielded from the light, etch the exposed metal with acid, and make what was the first photoengraved plate.

Between this crude beginning and the appearance of faithfully reproduced photographs—regularly within a few hours of the event—on newsprint... another vital step took place with the development by WOOD of the Autoplate system.

The modern Automatic Autoplate casts stereotype plates that retain delicate half-tone gradations as well as the sharpness of display and body type... at the rate of 4 standard-size page plates per minute... for both black and white, as well as color printing.

Other types of Autoplate equipment meet the varying requirements of all daily newspapers.



AUTOMATIC AUTOPLATE

Wood
NEWSPAPER
MACHINERY

WOOD NEWSPAPER MACHINERY CORPORATION • PLAINFIELD, N. J.

Executive Offices • 501 Fifth Avenue, New York 17, N.Y.

THE NEW POST WAR

Glider TRIMOSAW

MODEL G-4

"THE SAW WITH THE BALL BEARING TABLE"

Hammond Machinery Builders INC.

1604 DOUGLAS AVENUE • KALAMAZOO 54, MICHIGAN

Works slick card tricks

CARDBOARD up to 4-ply . . . limp or stiff, flat or wavy, with or against the grain . . . flows through the new ATF Little Giant at 2500 or 3500 an hour like playing cards through a magician's hands. New suction feed bar and caliper take it through the press without a double or miss . . . self-adjusting cylinder grippers need no change in tension from that for thin sheets. Profitable cylinder-quality jobs . . . fine-line or halftone work, color process and hair-line register jobs, heavy solids . . . can be rolled out *fast* at less than automatic platen press printing cost.

THE NEW ATF LITTLE GIANT

Made by the makers of the famous KELLY presses

Actual shop experience proves that the new 12 x 18 ATF Little Giant can handle the biggest percentage of run-of-the-hook jobs in the average plant, on any stock from tissue to 4-ply board, including gummed paper . . . at speeds up to 4,000 impressions per hour . . . *hour after hour.*

Ask your ATF Salesman for complete details, and sample sheets from straight commercial runs made under normal shop conditions.

American Type Founders

200 Elmora Avenue, Elizabeth B, New Jersey

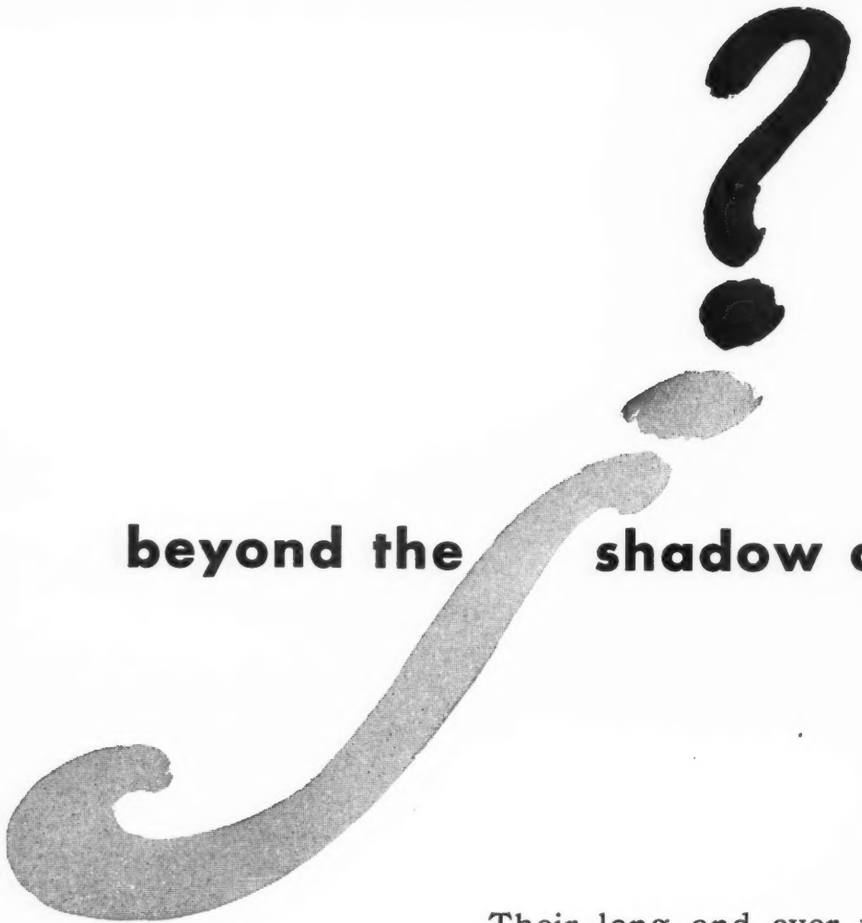
To keep up with continuing growth, the Goshen News-Democrat has expanded its production capacity with the installation of a new Goss Unitube Press. This press, which replaces a Goss Double Unit Cox-O-Type, will enable the News-Democrat to offer a wider range of color in advertising and editorial features, print larger editions in less time, and maintain the highest standards of quality printing.

The News-Democrat press has facilities for printing up to 16 pages with one extra color on two pages, or up to 12 pages with three colors and black on two pages. The press is equipped with all the latest Goss improvements, including tension plate lock-up, continuous feed ink system, and reversible printing couple... Every publisher of a medium-size daily is urged to get complete details on the revenue-building features of the improved Goss Unitube Press.

it's

GOSS *again*

THE GOSS PRINTING PRESS COMPANY
1535 South Paulina Street, Chicago 8, Illinois
New York • San Francisco • Preston, England



beyond the shadow of doubt

Their long and ever wider use by

fine craftsmen is unquestionable proof

of the high quality of Johnson Inks.

CHARLES ENEU Johnson AND COMPANY

GOOD INKS SINCE 1804

10th and Lombard Streets, Philadelphia, Pa.

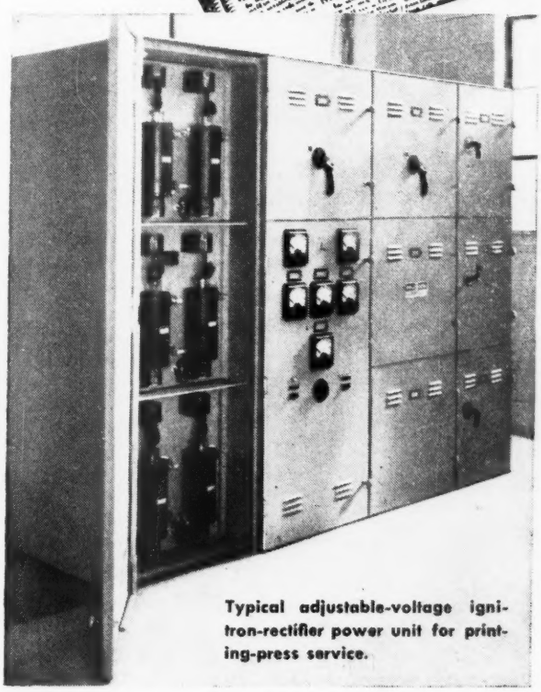
NEW YORK • CHICAGO • BOSTON • ST. LOUIS • CLEVELAND • DETROIT
BALTIMORE • KANSAS CITY • PITTSBURGH • ATLANTA • DALLAS

ELECTRONICS WILL MAKE THE NEWS AT DALLAS

Architect's drawing of the new building of DALLAS MORNING NEWS, one of the first newspapers in America to order the G-E electronic press-drive system.

FIRST IN THE SOUTHWEST

Mark of a progressive management, this installation of the new G-E electronic press-drive system at THE DALLAS MORNING NEWS will mean greater flexibility and efficiency in the press room. This alert newspaper is aware of the outstanding advantages inherent in this unique drive system that uses ignitron rectifier tubes to supply both power and control to d-c press motors.



Typical adjustable-voltage ignitron-rectifier power unit for printing-press service.

ELECTRONICS DOES IT

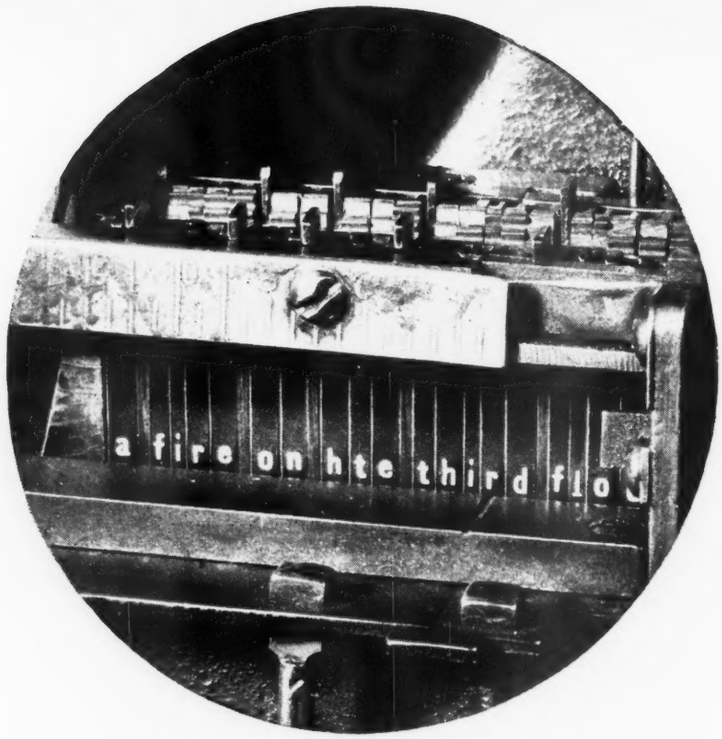
Industry's magic word has a new meaning in the press room as the ignitron rectifier tube converts a-c to d-c power for smooth operation of practically any press combination desired. Electronics allows practically constant high-operating efficiency down to half-geared speed. Motors are press-mounted, and because there are no slow-motion motors, overrunning clutches, or brakes, special foundations are not required, there is more space in the press or reel room, maintenance is simplified.

In the control room metal-enclosed cabinets containing the electronic tubes, feeder breaker, reactor, and magnetic devices are so designed that they make a modern streamlined load-center unit. The rectifier operates from 440-volt, three-phase power supply, and furnishes adjustable voltage to press-mounted direct-current motors. Operation from a push-button control station is the same as for other G-E drives. However, speed changes are practically infinite in number.

This drive system is suitable for most large newspaper, magazine, and rotogravure presses. If you, too, are planning for a new press, investigate the G-E electronic press drive. You'll get better all-round press performance at substantial power savings. The nearest G-E office will gladly give you more information. *Apparatus Dept., General Electric Co., Schenectady 5, N. Y.*

GENERAL ELECTRIC

658-18C-8609

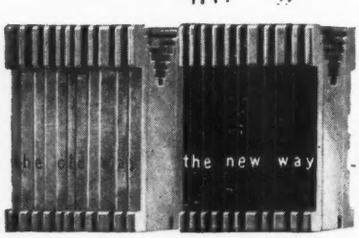


Like spotlighting every error before the line is cast...

As you can see, Matrix Contrast Service makes lines of Linotype and Intertype matrices readable at a glance. Errors are plainly visible in the assembling elevator and are easily detected and quickly corrected before lines are cast. In news composition there is an average reduction of ⅓ of all errors . . . with even larger savings in advertising composition.

Colors Now an Optional Feature—Plants in all sections of the country are using Matrix Contrast colors to aid operators in the detection of wrong fonts and to insure the positive selection of matrices from "pi" stackers or trays. The reference marks on old or new matrices now are processed in red, green, yellow, or orange, as well as white . . . against the same jet black background. This use of colors is an entirely optional feature of Matrix Contrast Service and involves no additional service charge.

Write today for complete information on the use of colors and all the other advantages of Matrix Contrast Service.



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Matrix Contrast Service

Detergents

For The Printer

By M. S. KANTROWITZ[1] and E. J. GOSNELL[2]

IN practically every section of the printing industry, the removal of ink or grease from the printing surface is an indispensable operation and "washing up," although not difficult, is regarded as an unpleasant and lengthy operation. Any improvements which reduce the necessity for washing up or which render this task easier and simpler are highly desirable. Both ink makers and printing engineers have given some attention to this problem.

The information contained herein is designed to indicate the more recent developments on the subject of detergents and "washing up" and is the result of investigations conducted by the Government Printing Office on this subject.

In the operations relative to the removal of wax from electrotype shells, the cleaning of press rollers, ink containers, slug-casting machine matrices, numbering heads, etc., there are two distinct types of detergents commonly used, volatile solvents and alkali cleaning agents. A third type, known as surface active or wetting agents, has found, so far, only limited use as a detergent in the Government Printing Office because of the relatively high cost.

All types were covered in the investigation, as a result of which the following detergents have been recommended and are now in use in the Government Printing Office.

Volatile Solvents

Gasoline—In the past, gasoline of aviation quality was extensively used and was believed necessary for cleaning type where quick drying of the cleaned surface was required. However, experimental work proved that cleaning gasoline or "industrial naphtha", conforming to the following specifications, was quite satisfactory.

Distilling below 70°C— 10 percent minimum
Distilling below 140°C— 50 percent minimum
Distilling below 200°C— 90 percent minimum
End point —205°C maximum
Residue after distillation shall not exceed 1 percent.
Shall be uncolored and free from tetraethyl lead.

Deliveries of cleaning gasoline purchased by the Government Printing Office from various oil companies have been found with few exceptions to conform with the above requirements. Gasoline possessing an appreciably higher end point or residue after distillation, than that specified, will leave oily surfaces, which interfere seriously with the taking and retaking of proofs, and will cause blistering of the tissue in making stereotype matrices.

Benzol—Pure water-white benzol is used for cleaning type in instances where gasoline will not remove the hardened or dried ink. This material is a better solvent than gasoline and in this quality does not possess an objectionable odor as do lower grades of benzol. It is also used for cleaning numbering heads used on presses. Benzol should be used with caution as it is admittedly somewhat toxic through both inhalation of vapors and skin absorption.

Ink Solvent—A mixture of 50 percent benzol and 50 percent acetone is recognized as one of the most powerful solvents for dried printing ink and is used for removing the hardened ink from halftones and old type which cannot be removed by gasoline or benzol alone. This mixture works to soften ink where most other solvents fail, but on account of its cost and inflammability, it cannot be as freely employed as other type washes.

Kerosene—In this Office kerosene is used for removing wax from the face of electrotype shells, cleaning press rollers and other detergent purposes.

Dry Cleaners Solvents (Stoddard solvent, Varsol, mineral spirits)—This solvent, possessing a vapor pressure and boiling and flash points midway between gasoline and kerosene, is used where a compromise must be effected between gasoline's inflammability and kerosene's slow evaporation rate.

Isopropyl Alcohol—Shortages of various solvents due to wartime restrictions led to the investigation by the Government Printing Office of isopropyl alcohol as a possible substitute for some of the critical constituents of solvents used in the Graphic Arts. Study of report No. 80 of the Medical Research Council of Great Britain on the *Toxicity of Industrial Organic Solvents* indicated that both by ingestion and inhalation isopropyl alcohol was less toxic than grain, wood, and secondary butyl alcohols, and much less so than benzol and gasoline.

Ink solvent consisting of 50 percent benzol and 50 percent acetone has found considerable use in the Government Printing Office and in other Government departments for cleaning printing ink from type, plates and rollers. When production of this solvent was curtailed during a recent shortage of benzol, it was found that the following isopropyl alcohol mixture was entirely satisfactory as a substitute:

	Percent
Isopropyl Alcohol	60
Acetone	25
Varsol (mineral spirits)	15

The addition of from 5 percent to 10 percent furfural, a powerful solvent obtained from oat hulls, further increases the solvent power of the above solution to dissolve dried printing ink and oil films.

Many places have been found where isopropyl alcohol can successfully replace the more expensive and more critical ethyl or grain alcohol. A few examples include cleaning halftones before molding, preparing stereotype mat releasing fluid (a solution used to facilitate the release of mats from type forms after molding), washing plastic molds before silver spraying, as a color solvent for marbling, and as a drying aid in ruling inks. It is thought that this relatively non-toxic, water soluble, low boiling fluid will find more widespread use as a solvent and as a constitutent in solvent mixtures in the future.

With the exception of kerosene, the solvents described above are all inflammable and caution must be observed when they are used near running electric motors or machinery which is liable to build up a static electrical potential that will discharge with the accompaniment of sparks. Adequate ventilation during use to prevent the formation of an explosive concentration of the solvent vapor with air is the best insurance against fire. Such solvents should not be used near an open flame regardless of ventilation.

Frequent requests have been received by the Government Printing Office for information concerning a non-inflammable type wash for use in the removal of dried and thoroughly hardened ink from plates and type pages. Using the previously described benzol-acetone mixture as a standard for solvent power, an investigation was made on the detergent characteristics, inflammability, comparative drying rates, and reported toxicity of a number of organic solvents and solvent mixtures. The results of this investigation are listed below in tabular form.

Consideration of the toxicity and irritant properties of the solvent to be used is of prime importance in making a selection. As stated previously, good ven-

[1]Technical Director, of the United States Government Printing Office.

[2]Chemist of the United States Government Printing Office.

ilation during use will eliminate the danger; however, good cross ventilation is sometimes impractical and is more often forgotten once the solvent and its odor has become familiar. Listed in Table II are the maximum safe concentrations in the air of the component solvents described in Table I.

TABLE I

Solvent	Drying rate 1 drop on Photoeng. Zn plate	Solvent Power on dried inks	Inflammability
"Ink solvent" Benzol 50% Acetone 50%	17 seconds No residue	Excellent. Immediate penetration.	Highly inflammable. Flash point approx. —4°F.
Gasoline	5 minutes. Oily residue still remains.	Poor. Immediate spread but no penetration.	Highly inflammable. Flash point approx. —10°F.
Carbon Tetrachloride	1 minute No residue	Good. Fair penetration.	Non-inflammable.
Tetrachloroethylene	No evaporation in 5 minutes	Very good. Immediate penetration.	Non-inflammable.
Trichloroethylene	1 minute, 15 seconds No residue	Excellent. Immediate penetration.	Non-inflammable.
Tetrachloroethane	No evaporation in 5 minutes	Excellent. Immediate penetration.	Non-inflammable.
Varsol	No evaporation in 5 minutes	Poor.	Difficultly inflammable at room temperature. Flash point —Approx. 105°F.
Carbon Tet. 75% Acetone 20% Furfural 5%	2 minutes, 20 seconds No residue	Very good. Rapid penetration.	Non-inflammable.
Acetone	19-21 seconds No residue	Poor.	Highly inflammable. Flash point —4°F.
Carbon Tet. 80% Acetone 20%	13½ seconds No residue	Excellent. Fast penetration.	Non-inflammable.
Carbon Tet. 45% Benzol 45% Acetone 10%	20 seconds	Excellent. Fast penetration.	Will flash but is self-extinguishing.
Trichloroethylene 50% Isopropyl alcohol 50%	2 minutes	Excellent. Immediate penetration.	Non-inflammable at room temperatures.
Trichloroethylene 80% Acetone 20%	18 seconds	Excellent. Immediate penetration.	Non-inflammable at room temperatures.
Benzene	1 minute, 50 seconds. No residue	Very good.	Highly inflammable. Flash point 12°F.
Ethyl Acetate	1 minute, 30 seconds. No residue	Fair.	Inflammable. Flash point 23°F.
Trichloroethylene 50% Ethyl Acetate 50%	22 seconds No residue	Excellent. Immediate penetration.	Difficulty inflammable. Self-extinguishing.
Carbon tetrachloride 50% Ethyl Acetate 50%	1 minute, 15 seconds	Good.	Non-inflammable.

Information regarding mixtures of these solvents was not available. However, it is probable that where there is no chemical reaction, the less toxic constituent acts as a diluent in reducing the toxicity of the others. In this connection, it is stated that when acetone is mixed with chlorinated hydrocarbons, under the influence of light, there may be a transference of chlorine leading to the formation of the highly poisonous chloroacetone.[1] The continued exposure to light that would be necessary to catalyze this reaction would be possible only through the use of transparent containers which are seldom found in the print shop.

Based upon the tabulated data and practical tests conducted in the Government Printing Office, it would seem appropriate to recommend the following trichloroethylene mixtures as replacements for the highly inflammable and no less toxic benzol-acetone "ink solvent":

1. Trichloroethylene 50%
   Isopropyl alcohol. 50%

2. Trichloroethylene 50%
   Ethyl acetate. 50%

The chlorinated hydrocarbons should not be used for cleaning rubber press blankets or rollers since they cause rubber compounds to swell to abnormal proportions due to the fact that rubber rapidly absorbs them either in the liquid or vapor condition.

Alkaline Cleaning Agents

Alkaline cleaning mixtures have replaced solvent cleaners formerly used in several printing operations, especially in the press, thereby effecting an appreciable saving as well as reducing the fire hazard. Detergents in this class are dissolved in hot water and used with a brush or in conjunction with washing equipment connected to drains. In general they cannot be used with wooden lockup furniture or on press rollers.

Formerly strong caustic soda, commonly known as lye, was used to a large extent for removing ink from type forms, especially when the ink had hardened, and for cleaning ink containers. Strong caustic solution, usually used hot, has several disadvantages. It is injurious to the human skin, possesses an objectionable odor, and leaves an alkali film on the cleaned metal which is difficult to remove. The lye solution, which is not thoroughly washed out of the type, also injures the stereotype matrices when heat and pressure are applied.

In order to avoid the use of strong alkalis, cleaning mixtures were developed containing tri-sodium phosphate, soda ash, and a small percentage of caustic soda.

These tri-sodium phosphate mixtures, though possessing distinct advantages over caustic soda, have in turn been replaced in the Government Printing Office by solutions of the soluble silicates, sodium meta silicate and sodium ses-

[1] Browning. "Toxicity of Organic Solvents," 1938. p. 312.

quisilicate, respectively. The cleaning power of an alkaline detergent is dependent to a large extent upon the available Na_2O (sodium oxide) content of the compound. Control analyses made by Government Printing Office chemists on deliveries of tri-sodium phosphate show the alkalinity expressed as Na_2O to be between 18.5 percent and 19.0 percent. On this same basis the alkalinity of sodium meta silicate is approximately 29 percent while that of sodium sesquisilicate averages above 37 percent.

These cleaners are not injurious to the human skin and do not possess an objectionable odor. Sodium sesquisilicate (known as Metso 99) particularly, leaves the surface of the metal clean and entirely free from alkali film. For washing press forms of flatbed presses, the Government Printing Office employs a solution consisting of 20 pounds of sodium sesquisilicate dissolved in 50 gallons of hot water. This solution is delivered at almost boiling temperature from a storage tank through a pressure pump to a specially designed washing machine. The form washing equipment consists essentially of a conveyer chain which carries the chassis containing the locked-up form in a vertical position past nozzles which spray the hot chemical cleansing solution under pressure against both sides of the chase. The form then passes by conveyer through a rinsing spray and drying apron and emerges from the washing machine thoroughly cleansed and almost dry. The remainder of the drying takes place by evaporation upon exposure to the air since the form emerges at a higher temperature than the surrounding atmosphere. The solution cannot be used if the lock-up contains wood furniture due to its swelling action upon the wood. This form washing machine which was developed and patented by employees of this Office is completely described in United States Patent No. 2,010,195.

Numerous inquiries have been received relative to the method used by the Government Printing Office in cleaning metal base forms. The forms are suspended by overhead chains and vertically placed in a tank equipped with a steam coil to permit heating and a 1 in. open end pipe to convey live steam below the surface for agitation of the cleaning solution. They are immersed in a water solution of sodium sesquisilicate heated to the boiling point. About 1 lb. to each gallon of water will give sufficient cleaning strength. The proportions need not be exact. After about 2 hr. of this treatment, the forms are removed from the bath to an adjoining sink and thoroughly rinsed with a hot water spray. They are then dried in a jet of compressed air and placed in a shallow tray where a mixture of half lubricating oil and half kerosene is poured over them and they are then again suspended to drain off the excess oil. The thin film of this oil, which remains on the metal surface, serves as a protective coating against rusting.

The plate catches used with our base forms are cleaned in the same hot "Metso 99" solution and oiled in the same mixture of kerosene and lubricating oil by placing them in a screened basket during the treatment. After dipping the basket in the oil mixture and allowing the excess oil to drain off, the catches are again put into immediate useful circulation.

Sodium sesquisilicate is manufactured and sold under the trade name of "Metso 99".

A special formula for cleaning the dampener rollers of offset presses combines a volatile solvent and a water soluble soap to make a concentrated, efficient, and non-inflammable cleaner which is diluted with water before use.

TABLE II

Solvent	Maximum Safe Concentrations in Air Parts Per Million
Acetone	2110[5]
Benzene	100[1, 2, 3]
Carbon Tetrachloride	100 (8 hrs. exposure)[1, 2, 3] 155 (1½ hrs. exposure)
Ethyl Acetate	Non-toxic[3]
Furfural	Non-toxic under ordinary plant conditions.[4]
Gasoline	1,000[1]
Isopropyl Alcohol	Non-toxic under ordinary plant conditions[2, 6]
Tetrachloro-ethane	20[1]
Tetrachloro-ethylene	200[1]
Trichloro-ethylene	200[1]
Dry Cleaning Solvent (Stoddard's Solvent, Varsol) (Mineral Spirits)	Non-toxic under ordinary plant conditions.

Notes:

1. Health Practices Pamphlet No. 9, National Safety Council, Inc.
2. Browning. Toxicity of Industrial Solvents, 1938.
3. Analytical Chemistry of Industrial Poisons, Jacobs.
4. The Quaker Oats Company, Bulletin No. 201.
5. Journal of Industrial Hygiene and Toxicology, 1944, Vol. 26, p. 150, "The Physiological Principals Governing the Action of Acetone together with Determination of its Toxicity." Haggard, Greenberg, Turner.
6. Public Health Bulletin No. 281.

Dampener Roller Wash

	Percent
Water	39.75
Varsol	17.00
Pine Oil	25.50
Soap Flakes	17.00
Sodium hydroxide (30% solution)	0.75

The first three ingredients are mixed together and the soap flakes added slowly with good paddle type agitation. Stirring is continued until the flakes have wet thoroughly. The sodium hydroxide solution is then added while the agitation is continued. Four to eight ounces of the above compound are used to a gallon of water.

Four to eight ounces of the above compound are used to a gallon of water.

Detergent solutions for the cleaning of Linotype and Monotype matrices are often used in conjunction with mechanical devices which whirl the mats in the solution or force a stream of the solution against them by means of compressed air. Chemicals such as sodium cyanide alone or a mixture of chromic acid and sodium bisulfate which clean satisfactorily, exert such a corrosive action on the mats as to make solutions of these chemicals impractical for more than intermittent use. Monotype matrices in the Government Printing Office are cleaned by forcing a mixture of equal parts of orthodichlorbenzene and water in a continuous heavy spray against the locked-up mats by means of compressed air in a closed system. Five minutes of this treatment followed by drying with compressed air alone is sufficient to clean the dirtiest mats.

Wetting Agents

Wetting agents belong to a group of materials called surface active agents, the characteristics of which are their ability to lower surface tension.

Their addition to water and other solvents in very small percentages results in a marked increase in the capacity of the treated solution to spread and penetrate. Another property of many of the wetting agents is their facility to aid in the formation of emulsions of oil and water.

These properties are often very useful for promoting better cleaning action of both water and organic solvents. Grease and oil films frequently can be removed more easily from metal and other surfaces by the use of solvents containing as little as 0.1 percent of wetting agent.

The use of small amounts of the correct wetting agent in the usual zinc chloride-hydrochloric acid flux will aid the spreading of the flux over metals to be soldered and is thus helpful in the zinc chloride flux for electrotyping which is brushed upon the copper electrotype shell prior to the use of solder and casting of the backing metal.

"Aerosol" and some other wetting agents are valuable when added to a developer to prevent the formation of the annoying pin holes often found in a developed photographic negative plate. These pin holes are, in many cases, caused by the presence of small bubbles on the plate formed by surface tension when the developer was poured on and preventing the action of the developer at that particular point.

It is claimed that the drying time of printing inks on paper is sometimes reduced by the addition of a wetting agent in printing ink. In the Government Printing Office, the use of a wetting agent has been found necessary in the stannous chloride sensitizing solution with which each electrotype mold must be washed before silver spraying.

Although the number of applications of wetting agents has increased greatly in the past few years, it is believed their potentialities in the graphic arts have not yet been fully explored and there is reason to hope for more extensive investigations in the future.

100 Years of Age

Firm of Sam'l Bingham's Son Mfg. Co. observing century of existence and growth in making rollers for the Graphic Arts Industries

ONE hundred years is a remarkable length of time for any firm to be in business irrespective of the industry of which it is a part. The span of time is incomprehensible to most everybody, hence it is all the more noteworthy to state that the firm of Sam'l Bingham's Son Mfg. Co. is celebrating its one hundredth continuous year of existence in the roller-making business. The right to say that a firm has endured for that length of time seems to connote unusual stability.

In observance of this event, the annual meeting of officers, managers, representatives, salesmen and production heads of Sam'l Bingham's Son Mfg. Co. was held at the Drake Hotel, Chicago, on March 16, 17 and 18.

The main plant is in Chicago. Branch factories are maintained in Atlanta, Ga.; Cleveland; Dallas, Tex.; Des Moines, Ia.; Detroit; Houston, Tex.; Indianapolis,Ind.; Kalamazoo, Mich.; Kansas City, Mo.; Minneapolis, Minn.; Nashville, Tenn.; Oklahoma City, Okla.; Pittsburgh; St. Louis, and in Springfield, O.

At the recent meeting of the Bingham organization, plans for expansion were outlined and discussed. Talks were given by different members on sales campaigns and efforts. New types of rollers were exhibited and discussed. A review of the past experience of the company was presented and future plans were outlined.

Fifty members of the company participated in the three-day meetings. On Tuesday night, March 18, (the closing day of the anniversary meeting) a banquet was held. At this time, the president of the company, Carl G. Bingham, was presented with a solid gold fountain pen and pencil set, engraved with his name and date of presentation. The gift was presented by C. F. Peterson, chief accountant, who has been with the company since 1897. Mr. Peterson spoke on behalf of the assembled personnel who contributed to the gift. In responding to the presentation, Mr. Bingham expressed his deep appreciation of the gift and the sentiment which inspired it. With the history of the company behind it and prognostications for the future before it, he expressed the hope that the future of the business would be as brilliant and successful as the past hundred years. All of those present felt that the meeting was a deeply commemorative event.

Historical Outline of Bingham Career

It used to be that the making of printers' rollers was a part of a pressman's duties. The making of rollers was incidental to his other duties and was a part of his trade knowledge. The manufacturer of printers' rollers as a separate industry was started by Samuel Bingham in 1847 in New York, N. Y. Bingham had learned the trade of a pressman. Included in his acquirement of the skill of his trade was the art of making rollers. Through personal experiment and personal application, he improved upon roller fabricating techniques.

After a time, the thought came to him that making rollers for his brother pressmen as a separate industry might prove profitable, and he started in the business. From that small beginning has grown the printers roller-making industry, not only in the United States, but throughout the world.

In due course, he was succeeded in business by his sons. In 1877, the youngest son, Millard F. Bingham, decided to embark in business for himself. He left New York to seek his fortune in Chicago, where he established a small roller plant of his own. By Bingham's industry and close application, the business grew and expanded. Branch factories were established in important printing centers here and there throughout the Middle West.

In 1914 he retired and was succeeded by his three sons, Millard F., Carl G., and Samuel A., all of whom had been engaged in the business for years past, Millard beginning in 1898, Carl in 1902, and Samuel in 1905.

In 1920 Mr. Bingham disposed of his interest to his three sons and severed his connection with the business, and was succeeded as president by Carl G. Bingham, who has been continuously the head of it since that time.

With the succession of the three Bingham boys, as they were called, sons of M. F. Bingham, the third generation of Binghams had entered into the roller business, and a fourth generation is now entering it. It is something of a record for four generations of one family to conduct a business enterprise successfully.

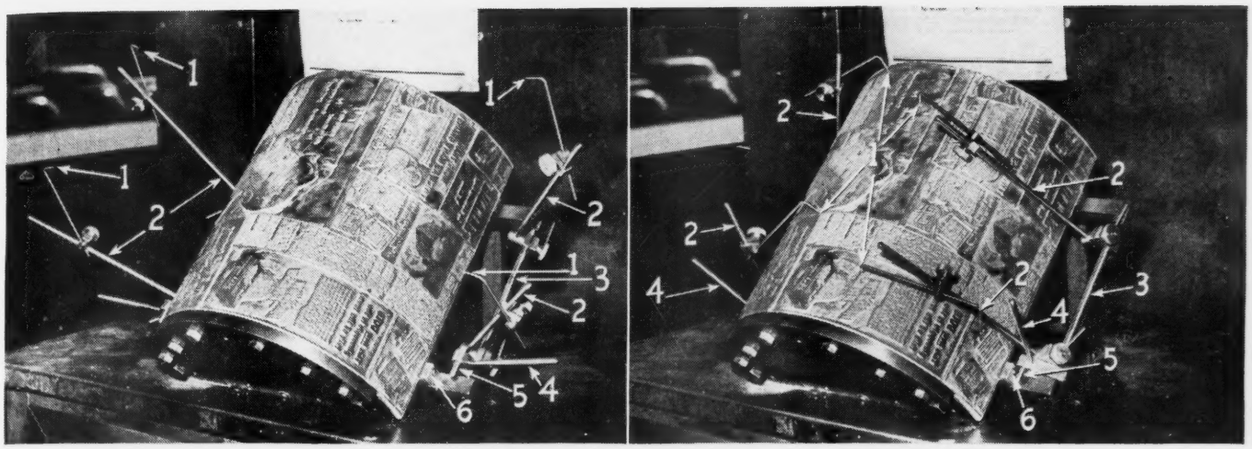
It is related that M. F. Bingham, son of Samuel Bingham, probably contributed more to the development and advancement of the roller-making industry than any other individual. It was he who first introduced the use of steel molds to replace the old cast-iron molds and the brass molds which were used up to that time, thus insuring straightness, perfect surface and an improved product.

He was the first to introduce the use of glycerine in the making of printers rollers, replacing the old-time molasses or syrup, which made a better and livelier roller than the old glue and molasses roller. He was the inventor of the so-called Gatling gun method of casting printers rollers in groups and with great speed; He was the first producer of the vulcanized oil roller, though the use of that roller never got very far until the advent of the offset press, when this type of roller really came into its own.

His energy, enterprise and inventive genius were inherited by Carl G. Bingham, now the president of the company, and under his direction the expansion of the business has continued and further developments are in the making.

Under the direction of Carl G. Bingham the building of roller-making machinery was undertaken and developed. He designed and directed construction of machines for boring the steel molds accurately, these being a necessary part of the roller-casting machine. He also supervised and directed development of the roller-coating machine furnished by this concern as well as various gadgets used on it. The company is now engaged in developing some new types of rollers which, if they prove successful, Mr. Bingham believes will revolutionize the present method of casting rollers.

In 1927, under the direction of Carl Bingham, the company started the manufacture of rubber rollers. After the usual vicissitudes, the product was improved and perfected. The company now makes rollers both of natural and synthetic rubbers.



Here are shown two views of the stereotype plate color register device in plant of Detroit *News*. The device is an adaptation of a similar device employed by the Pittsburgh *Press*. Its function is to provide a means for checking the register of the first color plate with the key (black) plate where multiple sets of plates must be cast for the press run. In this way, the stereotype department is assured that all color plates will be cast in register with the key plates. After the first color plate has been cast, it is brought to the register device shown here.

In the left-hand picture, the four pointers, *1,1,1,1,* have been adjusted previously to the key (black) plate and are then swung outwardly as shown in the right-hand picture by means of the handle *4* inserted in a block attached to the shaft *3*. After pointers *1* have been adjusted to the black plate, they are swung outwardly by means of the handle *4*. The black plate is removed and the first color plate placed upon the saddle. The pointers, *1,1,1,1,* are then swung back over the color plate. If the selected register points on the color plate coincide with the pointers, the balance of the duplicate color plates are cast. If not, the mat in the casting box is manipulated for position, a new color plate is cast, and it in turn is checked with the pointers which have been adjusted to the key plate.

The color register device was made by Master Mechanic Meyer for Stereotype Superintendent Charles Kirk of the Detroit *News*.

The device is substantially constructed and is finely finished.

In the right-hand view of the stereotype color plate register machine, the key (black) plate has been placed on the saddle against the stops at bottom and left of the supporting saddle. The operator moves the adjustable pointers *1* to certain locations on the plate which will serve as registration locations. As these locations are determined for each of the pointers, the operator tightens the split nuts on arms *2* and shafts *3* by means of the knurled knobs. After the four pointers, *1,1,1,1,* have been located and their positions determined, the operator throws the adjusted pointers to each side of the plate by turning levers *4* and *4* to clear the plate as shown in the left-hand view.

The black plate is removed and the first color plate is placed on the saddle. The pointers are swung over the plate by levers *4* and *4*. The pointers are returned to their previously adjusted position and are locked by engagement of the stud *5* with the spring ball detent *6* in the saddle frame. In this way, accurate readings of the pointers *4* may be obtained. If the selected registration spots do not coincide with the settings of the pointers *1,1,1,1,* the mat is repositioned in the casting box and a new color plate is cast. After the second trial color plate has been cast, it is checked for registration with the key plate as indicated by the pointer settings. Everything being OK, the balance of the color plates are then cast.

Stereo Color Plate Register Device

By CHARLES M. KIRK*

**Stereotype Superintendent, The Detroit* News.

A REGISTERING device for checking r.o.p. color plates is being used in the stereotype department of the Detroit *News*. Results obtained from the device are highly satisfactory. We first saw the device in the plant of the Pittsburgh *Press*. Detroit *News*' Master Mechanic Fred Meyer built the one shown in the accompanying illustrations in the design of which he incorporated some of his own ideas.

The purpose of the registering device is to check plates containing black and one color advertisements. In our plant, when a color advertisement is to be printed, the stereotype department must furnish anywhere from 6 to 12 sets of duplicate plates for the press run. Thus it will be seen that if the first set of plates (one each black and color) are not properly registered all of the duplicate sets of plates likewise would be out of register and there would be considerable delay in plating the presses. After the first color plate has been registered with the black or key plate, then the balance of the duplicate color plates can be cast and trimmed with the assurance that they all of the duplicate plates likewise will be in register. This permits the pressroom to start printing in minimum time.

In practice, the succession color forms are registered by the gelatine proof method and the key plates are cast. The first key plate (black) is placed on the saddle of the register device as shown in the accompanying illustrations and four points of register are secured. On successive mats, the first color plate is also placed on the saddle and the adjusted register points of the machine are brought into position to determine whether the successive color is in its proper position in the casting box. Manipulation of the mat in the box will make the necessary adjustment to correct any failure to register and the rest of the plates cast according to press requirements.

The photographs accompanying this article shows that the device consists of a saddle set at a 45 deg. angle with stops at each end and at the left side to insure uniform positioning of the plates. The four adjustable arms carrying the register pointers are fixed to an adjustable shaft, one at each side handling two arms each. These arms lock into any position by the use of knurled nuts. Each arm carries a pointer set at right angles to the arm and is also positioned by the use of knurled nuts. This arrangement gives a flexible coverage of the plate area and yet the points of register are rigidly maintained after being secured for the key plate.

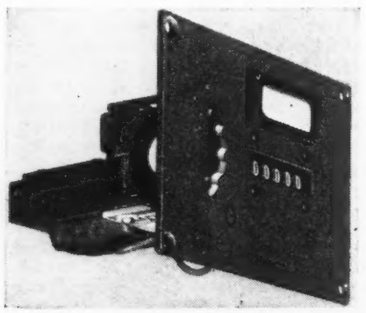
LTF Roster

A 24-page booklet has been published by the Lithographic Technical Foundation, a cooperative scientific research organization in the field of lithography. In the booklet are listed the members of the Foundation by classification. On the roster are 15 Founder, 19 Benefactor, 37 Life, 195 Associate, 82 Sustaining and about 350 Annual memberships. During 1946 there were over 700 Contributing members to the Foundation. It recently attained the goal of $1 million endowment fund.

EQUIPMENT & SUPPLIES

Electric Counter

AN electrically operated counter, designed for installation, reading and reset from the front of the panel upon which it is mounted, has been announced by the Production Instrument Co. They are called Wizard Panelmount Electric Counters. Manufacturer states that a panel mounted in the production control room can be arranged to maintain a continuous count on each of the machines, operations or movements of parts throughout a plant. Any number of counters can be grouped on a centralized count control panel, or flush mounted with other instruments on an instrument panel.



Panelmount Electric Counter to maintain a continuous count on various machines or operations.

The unit is actuated by electric impulses which may originate from any suitable switch, relay, or photo-electric unit and can be located at any distance from the source of the count.

The counters are made in 4 and 6 digit models, with required voltage up to 220 a.c. or d.c. Further information will be furnished upon request to *Printing Equipment Engineer*.

Packaged Type Font

AMERICAN Type Founders Corp. has announced that in the production of its type faces it has superseded its old font system with a new packaging plan, the ATF 3-Part Font Scheme.

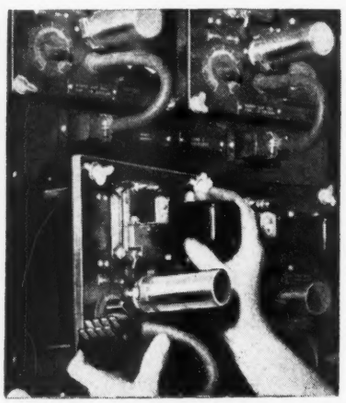
This system, the company said, gives the printer type faces packaged in (1) caps and points, (2) lower case and points, and, (3) figures. In title line faces, caps and points are in one package and all of the figures are in another.

The new packaging procedure allows printers to buy only the part of the font they need.

The change from the old system to the new will be made under a progressive plan now in operation. Class 1 type faces will soon be packed under the new method.

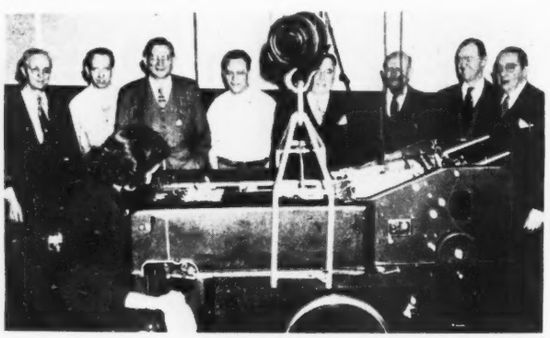
Quick-Change Electronic Control Unit

A development to increase the usefulness of electronics for industrial applications is the Cutler-Hammer Quick-Change Electronic Control Unit Panel. It is of heavy duty construction adaptable to printing plant and similar applications. The captive wing nut mounting and multiple contact plug arrangement permits substitution of a spare panel at any time. This is to provide uninterrupted machine operation when the electronic unit is removed for testing or maintenance. For further information write to *Printing Equipment Engineer*.



13 in. Lathe Catalog

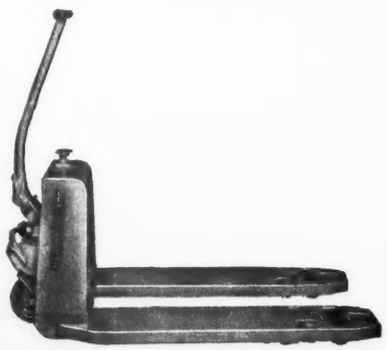
AN 8-page catalog 13F, illustrated in black and color, has been issued by the South Bend Lathe Works. In the catalog are described the 13 in. lathe. This lathe has a quick change gear box with gear combinations for cutting 48 pitches of screw threads, right or left-hand, and 48 power longitudinal feeds and cross-feeds. The gear box lever settings are selected from an attached direct reading index chart. Copies of the catalog may be obtained upon request to *Printing Equipment Engineer*.



Miss Jennie Sendon of American Type Founder's machinery sales department is shown, with a bottle of milk, christening the first of the new model Little Giants shipped by the factory. Looking on, left to right, are ATF's William Force, Steve Haller, Joe Kornmeyer, John Dettlefsen, Ed Roth, Willard Pollack, Jack Walsh and Louis Pleninger.

Hydraulic Pallet Truck

THE design of the Lewis-Shepard Multiple Stroke Hydraulic Pallet Truck make it possible to substitute plastic wheels for the standard metal wheels at the end of the forks as well as at the front. The purpose, states manufacturer, is to reduce wear and tear on floor surfaces. It is equipped with spring-lift booster rollers mounted back of the rear wheels and forward lowering. Designed in a one-piece box section frame, the truck is light in weight. The hydraulic lift is operated through a selective length stroke double foot pedal and permits operation from either side of the truck. The truck is built in capacities from 1000 to 6000 lbs. Further information may be secured upon request to *Printing Equipment Engineer*.



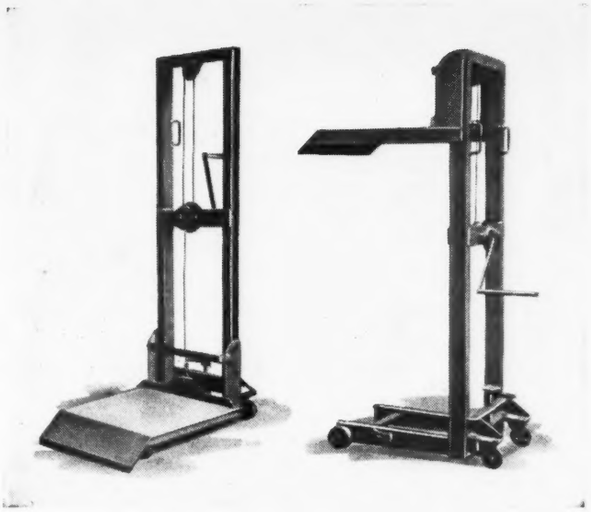
View of the Lewis-Shepard Hydraulic Pallet Truck.

Tape Tack Moistener

TAPE-TACK, a product to be used with water for moistening operations where gummed tape, gummed labels, envelopes or stamps are used, has been developed by Paisley Products, Inc.

One quart of Tape-Tack is mixed with three quarts of water to provide one gallon of moistening solution for gummed tape dispensing machines or moisteners. The glue film on gummed tape is not readily soluble in cold tap water. The manufacturer makes the following claims for its product: Renders glue film soluble; dissolves the glue and keeps it in a state of fluidity; assists its penetration into the container surfaces; lowers the interfacial tension of the dissolved gum and the paper fibres; aids the interlocking and chemical setting of the gum to the container board fibres.

After the solution is mixed with water it may be stored until it is needed for use. The mixed solution is used instead of water in moistening operations. Further information may be secured from *Printing Equipment Engineer*.



Manually operated Revolvator portable elevator is shown left with lowered platform and right with platform in raised position.

Portable Elevator

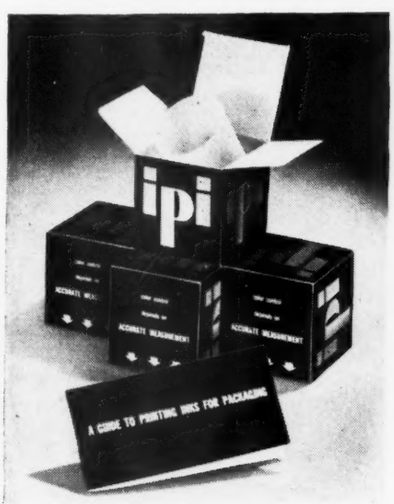
A LIGHTWEIGHT portable elevator for handling tools, boxes or cases weighing up to a half ton has been announced by the Revolvator Co. The platform is 22 in. by 24 in. for narrow aisles and the overall height is 68 in. It has a lift of 44 in. and a capacity of 1000 lbs. It is equipped with a floor lock and swivel casters at the hoist end. The elevator has a crank-up, crank-down hoist which it is claimed, allows no gravity drop. The end of the cable is placed either on top of the machine for 2-part arrangement, or directly on the platform for elevating half the load. The cable can be wrapped around a box to drag it on the platform by cranking. Further information about the elevator may be obtained upon request to *Printing Equipment Engineer*.

IPI Package Printing Hints

IPI has created a special package for this year's Packaging Conference in Philadelphia. Outwardly the package is a small black box with bright spectrum colors running through the IPI lettering on each side of the box. Printed on top and bottom are the legends "Color Control Depends on Accurate Measurement" and *A Guide to Printing Inks for Packaging*.

Inside the box is a vest pocket size booklet 4½ in. wide by 2½ in. high which gives in capsule size under fourteen headings a quick index to all the important factors in the selection and application of inks to package printing. Finally, the booklet is wrapped around a 2 oz. plastic reminder that accurate measurement is important in some social arts, too.

IPI printed a limited number of booklets but will honor requests for free copies as long as the supply holds out. *Printing Equipment Engineer* will forward your request for you.



Package created by IPI for 1947 Packaging Conference contains vest pocket booklet with hints for correct selection of inks for packaging.

Fluorescent Keyboard Lamp

SUPERIOR Fixture Co. states it has developed a fluorescent lamp especially designed for use to illuminate keyboards of line-composing machines. This lamp fixture fastens in the standard support usually furnished by the manufacturers of line-composing machines. The fixture is made of 14 ga. steel with baked white enamel reflector. The fixture is pivoted on a cross arm so that it can be moved forward or backward and rotated to give the operator the angle of light he prefers. By means of a supporting arm that fastens in the same holes used for the incandescent lamp, another pivot is formed that allows the fixture to be rotated 180 deg. to the left to clear space for magazine changes. The fixture can also be taken from its support and used as a trouble lamp.

Four supporting arms are available. No. 2 is for machines that have the lamp fixture holes at an angle. No. 3 is for those that are straight with the front of the machine. No. 4 is supplied with an offset dropping down 2 in. for operators who prefer a lower lamp position. No. 5 is for new style Intertypes and is supplied with a drop of 4 in.

A standard 15 w. (T8) fluorescent tube is furnished. Tubes are furnished in either daylight or white types. Tubes have maximum life expectancy of 6000 hrs. The maximum of the 6 w. tube used in two-tube fixtures is given at 2500 light hours.

To keep the Superior fixture as small as possible, the ballast is connected in series with one wire of the lamp cord and may be fastened to any convenient place such as a wall, ceiling or the machine itself. Standard 15 w. ballast is used to limit current to amount required by the tube. Lamp is designed for a.c. current. For d.c., more resistance may be interposed in the line with a plug-in clarostat.

Lamp is turned on or off by a white button.

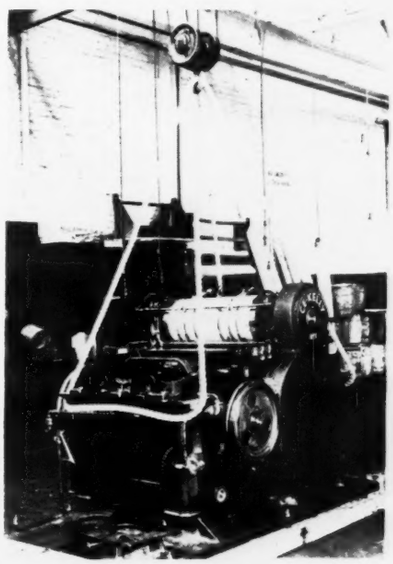
The lamp, it is stated by Superior, is in use over small presses, routers, desks, and the like.

Further information will be furnished either by writing to Superior Fixture Co., direct, or through *Printing Equipment Engineer*.

Shipment of C Kelly Press

A METHOD of preparing its C-Kelly presses for shipment from the factory, so they can be put into operation in a shorter time, has been announced by American Type Founders, Inc.

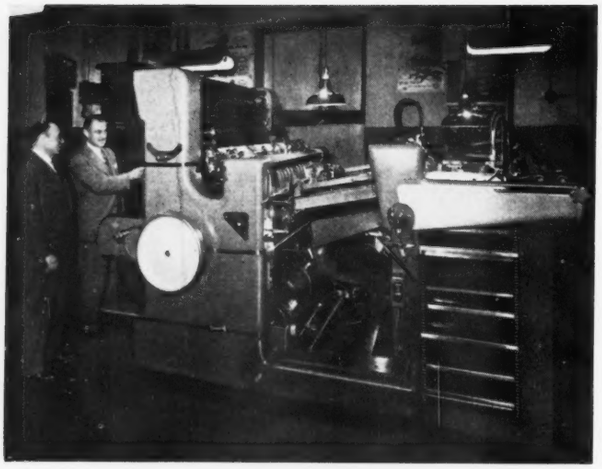
The Kellys are now packed in five cases, instead of seven as in the past, provided the customer's premises will permit the largest unit to enter. The largest piece is pictured here.



Formerly, the cylinder and type bed were boxed together and the floor plate was boxed separately. The illustrations shows the bed, cylinder and floor plate assembled to the column.

Out of Print

Printing Inks—Their Chemistry and Technology, by Carleton Ellis, is out of print. We will notify our readers when a new edition is printed. Until that time no orders can be accepted.



Stuart E. Arnett, Sales Manager of the Printing Machinery division of Electric Boat Co., announces initial installation of the E. B. Co. Willard 22 in. by 34 in. single-color offset printing press in the plant of Ardlee Service, Inc., 28 West 23rd St., New York, N. Y. In this picture are shown Lee Rosenstadt (left) and Bernard Rosenstadt.

Automatic Cylinder Press

STOESSEL Machine Mfg. Co., Inc., announces a 9 in. by 12 in. flatbed cylinder press. Inside chase measurements are 9¼ in. by 12 in. Manufacturer states anything that can be fed through the press including envelopes, cards and imprinting, can be printed on this press. Specifications are as follows: 1500 to 4500 impressions per hr.; variable speed motor adjustment to control speed; automatic trip to control feed, caliber attachment prevents jamming.

Suction feed is equipped with two valves, air blower, valve adjustment to control suction pressure. Pile delivery automatically lowers as feed bed rises.

Equipped with ⅛ in. grippers with positive gripper bar, micro-set side guides adjustable to size of printed job. On 3 in. by 5 in. to 9 in. by 12 in. sizes, close register is assured on color work.

Six-roller distribution consisting of two inking, two impression and two vibrating. Overhead fountain is accessible, ratchet side adjustment, 12 thumb screws for ink flow; fountain swings away from cylinder for washup.

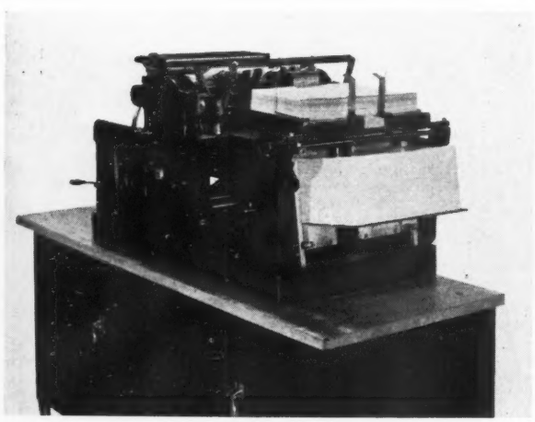
The feed bed holds 8½ in. of stock—2000 letterheads or approx. 500 envelopes.

The press may be furnished with or without table cabinet. Press itself is 44½ in. long by 20½ in. wide by 21 in. high. The table cabinet is 60 in. long by 20 in. wide by 30 in. high. Cabinet made of metal with drawers and space for storing type and accessories. Cabinet furnished with a wood top.

Further information will be furnished by addressing your inquiry to *Printing Equipment Engineer*.

Hoist Folder Issued

AN 8-page folder has been published by the Whiting Corporation, in which is illustrated and described its line of electric chain hoists. In this bulletin No. H-100-A, the need for hoists is analyzed. Specifications are given for the ¼, ½ and one T. hoist and illustrations of its use are shown. Copies of this bulletin will be sent upon request to *Printing Equipment Engineer*.



View of Stoessel 9 in. by 12 in. flatbed high speed automatic cylinder printing press. Furnished with or without special mounting cabinet.

Bulletin Issued

A BULLETIN has been issued by the Dager Maniform Co. Specifications are given with an illustration and description of the Dager Maniform Automatic Collator. The machine is designed for collating carbon-interleaved or non-carbonized business forms. Copy of the bulletin may be obtained upon request to *Printing Equipment Engineer*.

Thin Base Ortho Kodalith Film

The Eastman Kodak Co. has announced that the emulsion on its Thin Base Ortho Kodalith Film now duplicates the emulsion used for Kodalith Ortho Film Type II. Designated on each package by a sticker reading "Improved Type," the new coating is now in production. The Thin Base Ortho Kodalith Film, states manufacturer, features improved dimensional stability, offers approximately 50 per cent increased speed, has greater development latitude, improved dot etching characteristics, and will lie flat without buckling or wrinkling, both in processing solutions and when dry. Its emulsion is such that exceedingly fine scribing lines can be made on the film if desired.

Packaged in all standard Thin Base Ortho Kodalith Film sizes, and in rolls up to 40 in. in width, the improved Thin Base Ortho Kodalith Film will be obtainable through Kodak Graphic Arts dealers.

Production and Mechanical Executives:

The editor of *Printing Equipment Engineer* invites you to submit informally in letter form descriptions of production or mechanical devices which have been developed in your plant. Photos or rough pencil sketches will help to explain how the device or method operates. Other executives will appreciate your generosity in passing ideas along.

Distributor Appointed

The Champion Paper and Fibre Co. has issued a broadside to announce the appointment of the Acme Paper Co., St. Louis, Mo., as distributor for Champion paper in the vicinity of St. Louis.

Licenses Available

William C. Hart of William C. Hart Co., has announced that the company's patented ball bearing roller core for printing presses has been registered with the United States Commissioner of Patents. The core is now available for license agreement with all press manufacturers.

TABLE 1—NEWSPAPER PUBLISHING IN THE UNITED STATES IN 1945 AND 1939[1]

SAMPLE TABULATION OF 695 IDENTICAL NEWSPAPER PUBLISHERS: NUMBER OF PUBLISHERS, NUMBER OF PAPERS PUBLISHED, TOTAL GROSS RECEIPTS AND PAPER CONSUMPTION

Item and Year	Number of Publishers	Number of Papers Published[3]					Total Gross Receipts ($000)[2]	Paper Consumption (tons)
		Morning	Evening	Sunday	Weekly	Other		
SAMPLE PUBLISHERS:								
1945	695	184	479	231	199	21	557,706	1,410,759
1939	695	177	476	239	214	20	377,574	[4]1,596,801
Percent change	0	+4.0	+0.6	—3.3	—7.0	+5.0	+47.7	—11.8
COMPLETE 1939 CENSUS OF MANUFACTURERS	7,309	473	1,567	542	6,212	379	845,687	[4]3,595,435
Percent coverage of sample	9.5	37.4	30.4	44.1	3.4	5.3	44.6	44.5

Printing and Publishing Volume Estimates in 1945

THE gross dollar volume of business in the printing and publishing industry rose by about 60 percent between 1939 and 1945, according to early returns in the 1945 Census of Printing, Publishing and Allied Activities, it was announced by the Bureau of the Census. During 1945, paper use was about 10 percent under the high consumption levels of 1941-42.

In making public these preliminary estimates, Director J. C. Capt of the Bureau of the Census emphasized that figures on dollar volume of operations represent gross receipts before costs are deducted, and are not measures of the profitability of operations. Director Capt also stated that the figures are based upon a relatively small sample of early returns in the printing survey; and that they may be substantially revised when final results, covering a much larger number of establishments, become available.

Four tables of preliminary figures are shown here. According to these tables:

(1) Paper consumption of newspaper publishers declined 11 percent between 1942 and 1945; gross receipts rose 47 percent from 1939.

(2) Among magazine publishers, a 13 percent drop in paper used was noted from 1942-45, while gross receipts mounted by 99 percent between 1939-45.

(3) Book publishers used 5 percent less paper in 1945 than in 1942, while gross receipts mounted by 28 percent between 1943 and 1945.

(4) Commercial printers used 4 percent less paper in 1945 than in

TABLE 2—MAGAZINE PUBLISHING IN THE UNITED STATES IN 1945 AND 1939[1]

SAMPLE TABULATION OF 792 IDENTICAL MAGAZINE PUBLISHERS: NUMBER OF PUBLISHERS NUMBER OF TITLES PUBLISHED, TOTAL GROSS RECEIPTS AND PAPER CONSUMPTION

Item and Year	Number of Publishers	Number of Titles Published	Total Gross Receipts ($000)[2]	Paper Consumption (tons)
SAMPLE PUBLISHERS:				
1945	792	1,541	402,847	393,790
1939	792	1,528	202,237	[4]453,854
Percent change	0	+0.8	+99.2	—13.2
COMPLETE 1939 CENSUS OF MANUFACTURERS	2,742	4,985	409,027	[4]920,614
Percent coverage of sample	28.9	30.7	49.4	49.3

[1]Source: Census of Printing, Publishing and Allied Activities, 1945. [2]Data on dollar volume of business are in terms of gross receipts from advertising and circulation before any items of cost are deducted.

[3]Morning, evening and Sunday editions are counted as separate papers. [4]Data are for 1942.

TABLE 3—BOOK PUBLISHING IN THE UNITED STATES IN 1945 AND 1943[1]

SAMPLE TABULATION OF 216 IDENTICAL BOOK AND PAMPHLET PUBLISHERS: NUMBER OF PUBLISHERS, NUMBER OF COPIES SOLD, TOTAL GROSS RECEIPTS AND PAPER CONSUMPTION

Item	SAMPLE PUBLISHERS		Percent Change	Complete 1943 WPB-3229 Survey	Percent Coverage of Sample
	1945	1943			
Number of Publishers	216	216	0	1,319	16.4
Books and Pamphlets:					
Thousands of copies sold, total	237,305	191,972	+23.6	551,290	34.8
Gross dollar receipts (thousands)[2]	171,838	134,406	+27.8	306,379	43.9
Paper consumption (tons)	75,209	[4]79,220	—5.1	[4]199,779	39.7
Books:					
Thousands of copies sold	197,846				
Gross dollar receipts (thousands)[2]	168,434				
Pamphlets:[5]			Information not available		
Thousands of copies sold	39,459				
Gross collar receipts (thousands)[2]	3,404				

1941; gross receipts increased 65 percent between 1939 and 1945. These figures are all approximations. While gross receipts of the commercial printing industry included income from the printing of newspapers, magazines and books, figures on the paper consumed in these operations were included as part of the total consumed by the publishers. Some further qualifications on the information presented in the tables appear below.

Paper Consumption: Data on paper consumption in newspaper, magazine and book publishing include all paper used in printing these publications, regardless of whether this paper was furnished by the publisher or by the printer. Comparable data are presented for the year 1942, since no such information was available in 1939. The information for 1942 was collected under the provisions of limitation orders of the War Production Board. It should be noted that paper consumption in newspaper publishing in 1942 had already been reduced from the 1941 level, as publishers cooperated with War Production Board's Paper Saving Program. Information on paper consumption in commercial printing (exclusive of paper used in printing newspapers, magazines and books) is compared with data for 1941, the base year for War Production Board Limitation Order L-241. It should be borne in mind that paper consumption was controlled by limitation orders during a large part of 1945. Furthermore, comparisons of data between 1941-42 and 1945 should be made in consideration of the changes in basis weights which occurred during the period. Also, figures on commercial printing in 1945 included paper used for greeting cards and in Government contracts; these figures were not included in 1941.

Comparability of 1945 Data with Those for Earlier Years: Comparability of data on dollar volume of operations in 1945 and in 1939 was secured by tabulating information for identical establishments in both years. Comparability of data on paper consumption was secured by tabulating data for identical establishments reporting on the present survey and on the aforementioned surveys of the War Production Board.

TABLE 4—COMMERCIAL PRINTING IN THE UNITED STATES, 1945 AND 1939[1]

SAMPLE TABULATION OF 4,367 IDENTICAL PRINTERS: NUMBER OF ESTABLISHMENTS AND DOLLAR VOLUME OF PRINTING DONE BY PRINTING PROCESS

Item and Year	Number of Printers	Volume of Business in Thousands of Dollars[2]					Paper Consumption (Tons)[3]
		Total	Letter-press	Lithog-raphy	Gravure Rotogravure etc.	Engraving	
SAMPLE ESTABLISHMENTS:							
1945	4,367	514,646	360,607	133,987	15,954	4,098	471,175
1939	4,367	312,391	228,118	72,079	9,920	2,274	[6]493,957
Percent change	0	+64.74	+58.08	+85.89	+60.83	+80.21	—4.61
COMPLETE 1939 CENSUS OF MANUFACTURERS	20,625	861,520	665,115	157,886	23,123	15,396	[6]1,400,996
Percent coverage of sample	21.17	36.26	34.30	45.65	42.90	14.77	35.26

[1]Source: Census of Printing, Publishing and Allied Activities, 1945. [2] Data on dollar volume of business are in terms of gross receipts before any items of cost are deducted. [3]Data on paper consumption do not include paper consumed in printing newspapers, magazines and books for publishers. [4]Data are for 1942. [5]A pamphlet is defined to mean any collection of at least eight (8) but less than sixty-four (64) paperbound pages to be offered for sale. All collections of sixty-four (64) or more pages bound by any method are considered "books." All hardbound collections, irrespective of the number of pages, are considered books. [6]Data are for 1941.

Dutro proposes putting fine screen halftone and color process work on newsprint by combination rotogravure and offset-lith press for newspaper sections — White coating applied to newsprint by rotogravure-like method

ORVILLE DUTRO of Orville Dutro & Son, proposes to put a white background on newsprint by a rotogravure-like method called Rotograf. Upon this will be printed in the same press four-color process work by web-feed offset-lith. The white background enhances the brilliance of color work. The idea behind the method is that newspapers will be enabled to print in color one or two sections of an edition by the combination process. It is known that a number of newspaper executives have seriously considered the possibilities of printing magazine or feature sections by offset-lith.

Mr. Dutro states a detachable plate rotogravure press will be announced soon by his firm jointly with Joshua Hendy Iron Works. The press can be hooked up in combination with web offset printing units to accomplish the result described above.

By way of explaining the motive for designing the special equipment, Mr. Dutro said:

"Among the seemingly insurmountable difficulties in newsprint would be the lack of inherent paper whiteness required for the reproduction of color. Everyone will recognize that 'paper is part of the picture,' and without paper whiteness, beautiful color reproductions are impossible. It is not likely that paper possessing the desired whiteness, within the range of newsprint prices, will appear on the market in the near future.

"The development of a 'twin process' method of printing may bring about unexpected possibilities. Let us consider what is meant by 'twin process'. We mean two processes which can be worked together under all circumstances. An idea of this would be electrotypes and stereotypes, but their shrinkage factors are different—as are electrotypes and rubber plates. However, with the development of the detachable plate rotogravure-Rotograf and offset-web presses, we have what we consider a 'twin process'. That is, the presses use two types of plates which produce printing having entirely different characteristics, printed with different types of ink, yet made on the same thickness of plate with the same stretch factors and produced with the same type of equipment. This press which is designed to be coupled with a web offset press, can print in two processes from the same plate—rotogravure and Rotograf. The rotogravure process will be produced by the conventional carbon tissue method, but Rotograf is different. Plates for Rotograf process are produced by standard photo-engraving chemicals and methods. They are simple, quick and inexpensive. They can be printed in screens from 130 to 200 lines, and produce a result that compares more with letterpress than with standard rotogravure.

"Now let us consider what might be accomplished in color reproduction for newspapers by combinations of this process and photo offset web presses. In the first place, rotogravure inks dry so rapidly that drying can be completed

between the printing of one color and the next on reasonably fast web presses.

"Just to play around in the realm of possibilities, let us suppose that a natural color picture were to be produced on an off-white newsprint such as is commonly used throughout the country. Let us assume that a set of process color plates have been made in the conventional four colors plus a background Rotograf plate to print solid white in areas where the process pictures are to appear. This whitened background is dried in the instant between its printing and the printing of the second color. For example, presuming that the yellow, red and blue follow in quick succession in the Rotograf process, each color is properly trapped because of the rapid drying qualities of the colors previously printed.

Print Type By Offset

"But let us suppose that instead of using the Rotograf process for black, we use photo-offset. The black plate will also include the type, eliminating the necessity of printing the type in screen and therefore producing a finer result. While it would not be practical to use 130 line screen for single color printing of Rotograf, screens that coarse could be used for color plates; therefore, the black would be printed in photo offset, 130 line screen, in which case it would not set up a moire. Results produced from such a process would have the benefit of a high white background and would produce color reproduction equivalent to any national magazine and type without screen."

The 26 Old Characters

By LYNE S. METCALFE

WHAT is thought to be the first attempt to tell the origin and history of writing from the primitive cave drawings or graphic languages of mankind down to the represented era of the modern fountain pen in sound motion pictures is represented in a new film *The 26 Old Characters*.

This new motion picture, produced for the sponsor—The W. A. Sheaffer Pen Company, by the Jam Handy Organization, is two reels in length and is designed primarily for use within the school systems of this country. It is loaned to educational, cultural, and trade groups without charge.

This new movie approach to the subject begins with a visualization and recorded commentary of the vital necessity for communication via the written word in our world of today, the fact that such a means of idea and thought communication comes natural to the modern child.

That all this goes back to some 50 thousand years ago, when our primitive ancestors started drawing pictures of birds, beasts and common surroundings on cave walls.

Quoting from the premises of this sound motion picture:

"Ancient picture writing, scratched with a bit of flint on a piece of slate, tells of a battle with a mammoth. Picture writing did well enough for recording a simple fact, but it could never be used for a clear expression of a thought or an idea."

It is shown that the Egyptians first "wrote" in pictures, but soon each picture stood for the *sound* of a *syllable*, a big improvement. It was finally made practical for every day use by improved tools of writing—the reed brush, papyrus, and so on, forerunners of today's writing tools.

The film story goes on to depict and explain, how, with the help and suggestion of Egyptian writing progress, the Seirites developed the world's first pure alphabet. There follows a closeup sequence visualizing on a clay surface, the basic development of this alphabet which was the forerunner of what we use and know today in business, education, literature and the arts. How this alphabet spread over the Greek and Roman worlds is also dramatically outlined in picture and commentary.

All during these centuries, improvements were made in the tools used for writing and the materials upon which the writing was done. There is an especially impressive sequence showing how the reed pen, on papyrus, made it easier to connect letters which resulted in time in our small letters or, as the printer refers to them, "lower case".

The story then proceeds to show the introduction of calfskin vellum as the writing material with which writing gradually became a fine art. There are sequences on the development of latter day hand writing as education spread over the world.

Perhaps one of the most interesting sequences in this picture is that which shows the necessity of writing facilities everywhere in modern life, what may result from the lack of, say, a writing instrument at a crucial moment.

Considering the importance of the part played by the modern fountain pen in education, business, social life, literature and journalism, it was thought by the sponsors that a clearcut visualized explanation of how the modern fountain pen functions, what this means to the world at large, would be of great interest and value, not only in the classroom but also among groups of people in the arts, business, and commerce in which writing clear and concise and rapid plays a vitally important part today.

For details regarding free showing of this motion picture, write to The Jam Handy Organization, 2821 E. Grand Boulevard, Detroit, Michigan.

Fred W. Danner, president of Danner Press, Inc., and Akron Typesetting Co., was elected Potentate of Tadmor Temple Shrine, A.A.O.N.M.S. at a recent meeting of the Temple at Akron, O.

At left: This is how it all began when man sought to express himself through means other than voice.

Center: This is how the Egyptians went about permanent recording of events.

Right: In our present world, this, too, is among the Graphic Arts.

Photos courtesy Lyne S. Metcalfe

Plastics in Place of Type Metal?

Abstracted from address delivered before the PNPA Mechanical Conference, Harrisburg, Pa., April 1947, by A. O. Albin, Engineering Dept., Mergenthaler Linotype Co.

WE have been asked frequently whether plastics hold any promise of being a substitute for type metal. Thus far the answer is "no." The casting mechanism of the composing machine is designed to take advantage of that well-known property of type metal to pass from a liquid state to a solid state almost instantaneously. It is interesting to note that if you timed the action of the Linotype from the time the pot pump lever descends, to the time when the slug has been cast, you will find that only two seconds have elapsed. In that short time the metal has solidified enough to permit moving the slug past the back knife for trimming to type high. There are no known plastics which have anywhere near this very advantageous property of type metal. In addition to the cooling problem, we have the pressure angle to consider, since the pressure of molding plastics is very much higher than that for which the composing machine is designed.

Offset, plastic plates, composing machine maintenance and other pertinent topics discussed at PNPA Conference

DEFINITE advantages of a 24-hour advance copy deadline, introduction of new type tympan papers, increased use of color advertising, and curtailment of a high percentage of the overset in the composing room all commanded considerable comment from nearly 250 mechanical department employees, publishers, and supply and manufacturing representatives attending the 1947 Annual PNPA Mechanical Conference held April 11-12 in the Penn Harris Hotel, Harrisburg, Pa.

William L. McLean, jr. vice president and treasurer of the Philadelphia *Evening Bulletin*, and president of PNPA, greeted the registrants.

Lack of repair parts, cleanliness and orderliness in the composing room, and offset printing occupied the Friday afternoon agenda following the morning registration.

In referring to the shortage of repair parts, George T. Wegemer, mechanical superintendent of the Connellsville *Courier*, stated, "One of the deciding factors in being able to keep our machines producing daily in the face of the parts shortage, is that we are devoting more time to cleaning and oiling. The machines are being checked for worn parts more thoroughly. Worn parts are replaced if we have them or are adjusted to compensate for the wear more accurately. Matrices or machine parts are not being junked unless we are firmly convinced that they cannot be made to perform the work intended for them."

The savings realized by close attention to cleanliness and orderliness in the composing room was discussed by Eugene Connors, mechanical superintendent of the Warren *Times-Mirror*. Allen C. Spurgeon, manager of the Standard Printing Co., Uniontown, revealed the decided growth of offset printing.

Offset's Phenomenal Growth

"The phenomenal growth of offset within the printing industry is best illustrated by Bureau of Census figures. About 13% of the total volume of printing done in the United States was handled by the lithographic process. In 1940, over 20% of the total volume was so handled. Since 1940, offset sales have gone up 86% as compared to a 58% increase in letterpress sales. It is safe to assume that now at least 25% of the total volume of printing sales is being accomplished by offset printers. And so, as the trend in sales continues, the rise in offset is reaching further out and invading fields which in the past have been strictly letterpress—indeed it has trespassed into the newspaper field." Spurgeon stated.

The Friday evening session was devoted to photography, photo-engraving, and reproduction with Stanley Myers, assistant mechanical superintendent of the Philadelphia *Evening Bulletin* presiding. A panel discussion led off the evening program which opened with the talk, *Being a Successful Combination Photographer-Photoengraver*, by Robert R. Eyerly, the Bloomsburg *Press*.

Minimum Engraving Plant

Answering the question paramount in the minds of many smaller-newspaper publishers, Eyerly stated, "What is the minimum equipment required for a small engraving plant? . . . I believe that you should purchase the following equipment: darkroom camera, lens, screen, arc lamps, safe lights, printing frame, vacuum, whirler, etcher, saw or gullotine, trays, thermometers, glass flats, and miscellaneous small items. You could build the darkroom, two sinks, viewer, stripping table, powdering cabinet, burning-in stove, and plate cooler.

"With this equipment properly laid out in your plant and the services of a competent engraver, you could produce the desired results," Eyerly concluded.

Dietrick Lamade, II, of *Grit*, Williamsport: spoke on the experiments being conducted at that plant with thermoplastic cement. Further experiments are being conducted, and he estimated that they should be completed in the very near future.

Printing with poor cuts and mats was discussed by Hans E. Rosberg, mechanical superintendent of the Norristown *Times Herald*. Among the many suggestions for smaller newspapers made by Rosberg, was "using a 65-line screen formerly sent us, made us recommend a change to a 55-line screen and I think that the change has brought us a more uniform printing job. This does not mean, though, that we wont try the 65-line screen again."

A floor discussion followed concerning the problems faced in the smaller plants with plastic plates. The major difficulty is the problem of cutting off borders and excess plastic to make them fit in the alloted space. Some papers reported difficulty in mounting the cuts, while others admitted having other troubles with them in the stereotype room.

Departmental Co-operation

The Saturday morning session was devoted to composing room problems, with Alan G. Kistler, mechanical superintendent of the Wilkes-Barre *Times Leader-Evening News* presiding. A recent PNPA survey of daily newspaper composing rooms was discussed and E. O. Davies, mechanical superintendent of the Harrisburg *Patriot-News* then talked on the *Key of Operation Success—Departmental Co-operation.*

"The seed has fallen upon fertile ground and already a goodly harvest is in evidence," Davies remarked concerning the success of the series of conferences resulting from his original claims that mechanical departments must cooperate with and have the cooperation of other newspaper department heads and their staffs.

"Cooperation is not a one-way street and I did not say it was. The mechanical executive must be concerned regarding the problems of the other fellow. We We hear too much from both sides about 'rights' and 'privileges' and not enough about 'obligations,' " Davies continued. "Obligation first to our employer and second each department to the other, and this obligation is not discharged until we all work in harmony. We must use qualities of sanity, moderation and tolerance which are indispensable to the operation of any business. All departments must become cost conscious if we are to meet competition successfully in

Representative Newspaper Executives and Manufacturer and Supplier Men attending PNPA Mechanical Conference, Harrisburg, Pa., April 1947

1—Frank G. Williams, Warren (Pa.) *Times Mirror,* Press Supt.; Edward J. Cook, Jr., Certified Dry Mat Corp.; W. L. Detwiler, Lancaster (Pa.) Newspapers, Mechanical Supt.; and Nicholas M. Fellman, Chester (Pa.) *Times,* Mechanical Supt. and PNPA Conference Chairman.

2—Theodore A. Serrill, PNPA Associate Manager in charge of industrial relations; Neal E. Dyer, Mechanical Superintendent, Camden (N.J.) *Courier Post,* (suspended) and chairman of New Jersey Mechanical Conference; W. A. Hawthorne, Mechanical Superintendent, *Valley Daily News,* Tarentum, Pa.; J. Arthur Klatte, Pressroom Foreman, *Grit,* Williamsport, Pa., and T. A. MacElwee, Manager, Eastern district, Intertype Corporation.

3—C. E. Humelsine, Hagerstown (Md.) *Herald-Mail,* Plant Supt.; Wm. A. McGuigan, Mechanical Supt., and D. Philip Young, York (Pa.) *Dispatch,* Publisher, and L. H. Butler, Harrisburg (Pa.) *Telegraph,* Mechanical Supt.

4—Harold C. Berg, Asst. Director of Production, Wilmington (Del.) *News Journal;* Joseph P. Dorr, Vice Pres., Capitol Tool Mfg. Co., Washington, D. C.; Herbert Blomquist, Eastern Representative, Duplex Printing Press Co., and Cyril Moran, Pressroom Foreman, Scranton (Pa.) *Scrantonian* and *Tribune.*

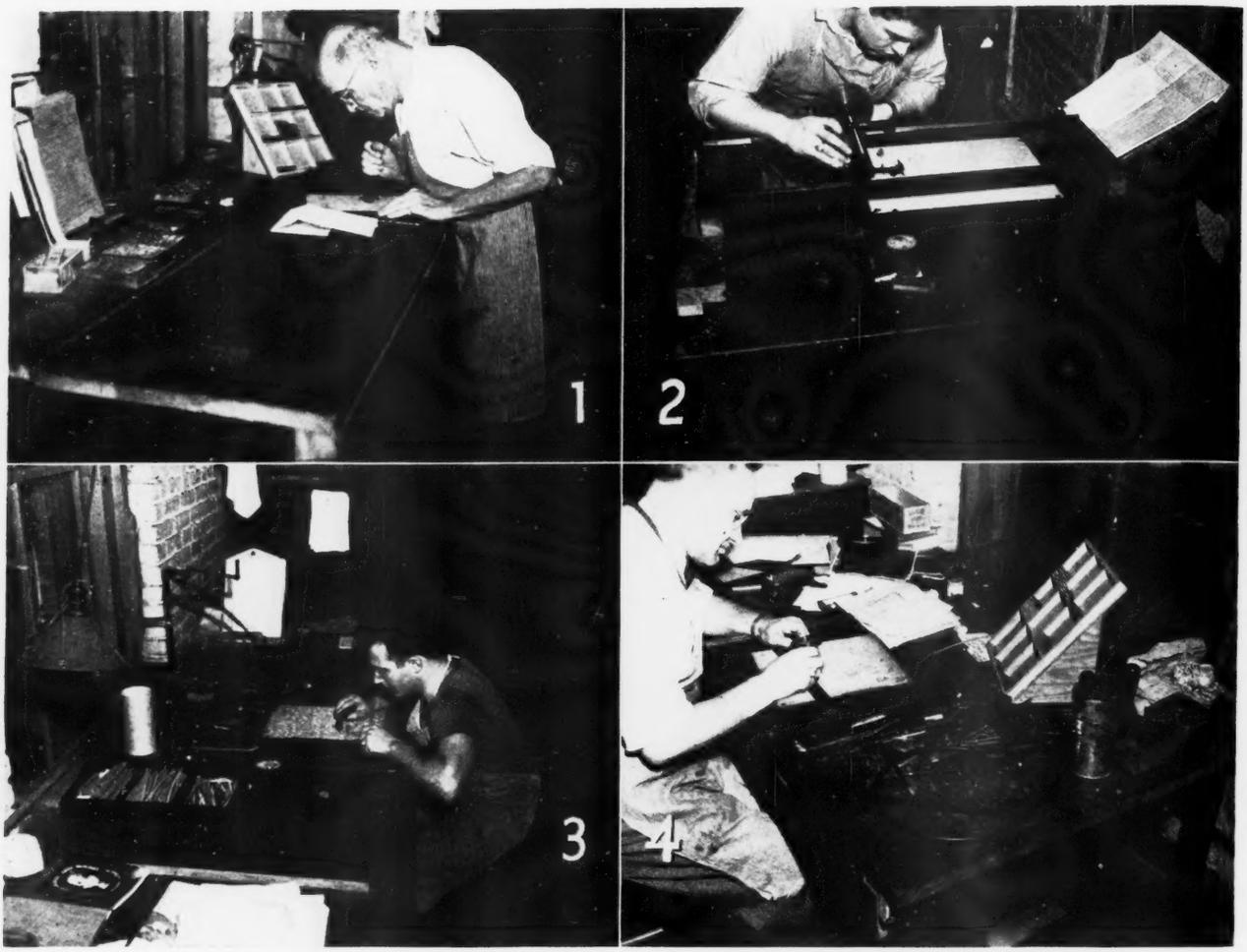
5—Harry W. Sherman, *Call-Chronicle* Newspapers, Allentown, Pa., Mechanical Supt.; W. A. McCloughan, the *Morning News,* Danville, Pa., Publisher; John J. Fields 3rd, Wm. C. Herrick Ink Co., President, and M. C. Pintard, Penna., Mgr., Wm. C. Herrick Ink Co. and Chairman of the Supply and Manufacturers' Group providing entertainment.

days ahead. Perhaps we don't like to admit it, but we are a manufacturing industry and we must adopt manufacturing methods if we are to succeed. We must find ways and means to combat the tremendous increase in costs of all departments."

Referring to Davies remarks concerning departmental cooperation, Errol H. Derby, managing editor of the Greensburg *Daily Tribune,* stated, "He did start something concerning cooperation. He began what later turned out to be one of the best editorial panels which it has been my good fortune to participate. It was unanimously agreed that many of the points suggested for improvement by Mr. Davies were valid. Others took embrage at some of the criticism. As one of the managing editors said, 'Cooperation is a two-way street. It doesn't mean making a floor mat out of yourself.' "

In talking of the understanding between the news room and the composing room, Derby remarked, "There is no reason why a news room and composing room cannot work in harmony but there must be basic understanding. After all, we are both working for the same publisher. Unless we both feel we are serving

(Continued on Page 48)



Illustrated explanation of some of the steps involved in producing wax engravings for electrotyping. These engravings have their peculiar uses in the Graphic Arts field.

Fig. 1.—The operator is using the hand chase in which type is locked to imprint the text in the proper place in the soft wax film which is supported by the copper plate.

Fig. 2.—The ruling machine is used to cut lines in the wax film on the copper supporting plate.

Fig. 3.—Here the operator is applying softened wax and spreading it over non-image areas. The built-up wax areas cause the plate to be deeper in the non-printing areas and thus eliminate routing in the electrotype.

Fig. 4.—After the wax plate has been completed, the operator does a certain amount of hand work or retouches lines to produce as perfect a plate as possible. The same procedure is followed when a change is to be made in the design of the plate, or if a correction is necessary.

Wax Engraving — *What it is and something about the technical side of what is largely a skilled craft profession — Its uses explained*

By ADAM HENRI REISER

AMONG the many methods used to secure printing surfaces is that of wax engraving. It is a method that bypasses finished sketches, considerable composition and in addition permits making many multiple forms from a finished original. How are wax engravings produced? For the answer, we visited Empire Wax Engraving Co., New York, N. Y., where our good friend, J. F. Villanella, told us this story.

Many maps and cuts in history and geography books are produced from wax engravings. Dials, charts, ruled business forms, reverse plates—solid color plates, ruled tints, solid background with white lines and lettering—forms of many types requiring absolute size and exacting workmanship with high fidelity of reproduction, all owe their start in printing to the wax engraver.

Basically, wax engraving consists of cutting a design through a thin coating of wax that has been deposited upon a copper plate. Wax engraving really supplies the electrotype mold. That is its function. As in other electrotype reproduction, the wax is black leaded before being put into the electrolitic bath.

The mold thus produced for the electrotyper is created manually following copies of various forms sent in by the client.

A rough map or diagrammatic sketch to be reproduced may be made by the wax engraver in one of two ways. In order to get a guide on the wax surface for engraving, he may either go over the pencil lines on the rough with India ink and then have a negative made, or he may trace the dummy to the wax surface and then cut it in.

When the camera-conscious Graphic Arts worker handles the reproduction, the negative will be shot the size of the finished product. It will read backward,

(Continued on Page 38)

EXECUTIVE ¶s

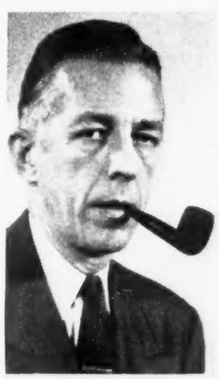
J. L. Bluemer, veteran of more than 29 years service with Harris-Seybold, passed away in Kansas City recently

J. L. Bluemer, Harris - Seybold representative, passed away recently.

following a short illness. He joined the Harris Automatic Press Co. as a service man in 1917 and at the time of his death was a sales representative in the firm's Western District. Prior to joining Harris he was a letterpress operator in New England. He is survived by his widow and son.

Otto Maehr, plant engineer of the Linotype Co., has been made Grand High Priest of Royal Arch Masons of the New York State. The honor was conferred recently at a dinner at the Hotel Towers, Brooklyn, N. Y.

Recently appointed Chief Engineer of the E. G. Staude Div. of The Sperry Corp., is Arthur P. Bamford. He is



Arthur P. Bamford appointed Chief Engineer of E. G. Staude Div., The Sperry Corp.

familiar with special applications, such as roll-fed printing equipment. He started his own business in 1939, and designed and built printing presses and acted in a consultant capacity in printing press problems. Special units for cutting and creasing, window applying and bag fabrication were developed under his guidance.

James M. Chapman, physicist, has been appointed to the staff of Battelle Institute, Columbus, O. He will be engaged in research in Graphic Arts. Mr. Chapman is a graduate of the University of Cincinnati. He was formerly associated with the physics laboratory of the Interchemical Corp. He is a member of the Engineering Society of Cincinnati, Sigma Xi, and Phi Beta Kappa.

Irving K. Stone, President of the Duplex Printing Press Co. has announced the appointment of Albert J. Graf as

Duplex Printing Press Co.'s Chief Engineer, Albert J. Graf.

Col. E. C. Goebert, plant manager at Duplex Printing Press Co.

chief engineer and Col. E. C. Goebert as plant manager. Mr. Graf was former works manager of the Goss Printing Press Co. He is a member of the American Society of Mechanical Engineers and holds two committee chairmanships in that organization. Col. E. C. Goebert retired from the U. S. Army after 29 years of service at his own request. During the war he was technical advisor in the Ordnance Dept. to commercial companies manufacturing gun carriages and recoil mechanisms. He was decorated with the Legion of Merit. He is a graduate electrical engineer from the University of Pennsylvania.

Charles D. Adkins has joined the J. M. Huber Corp. sales force as National Newspaper Representative. Mr. Adkins was formerly midwestern manager of the George H. Morrill Div. of Sun Chemical Corp. His headquarters will be in Chicago.

Announcement has been made by Reuben B. Robertson, president of the Champion Paper and Fibre Co., of the

Carroll L. Wilson is appointed Financial Director of Champion Paper and Fibre Co.

appointment of Carroll L. Wilson as director of finance. For the past two years Mr. Wilson has been consultant in financial affairs, and in his new capacity will be responsible to the president for the development of financial and economic policy.

Charles R. Sherman has been elected general manager of buying for Sun Chemical Corp. and its divisions. Sherwood M. Bonney has been elected secretary and treasurer.

Pictured is Park W. Cowan, president of Cowan Pressroom Products, Inc., Hollywood, Calif. He recently celebrated his 85th birthday. Still active in the business which he founded more than 30 years ago, Mr. Cowan started in the printing business when he was 14 years old in Salem, O. Cowan pressroom products manufactures slitting press equipment, perforators and Morgan expansion roller trucks. The firm recently incorporated and Robert C. Cowan is general manager and Miss Amy Williams is secretary.

Dr. Luther E. Vaaler, chemist, has been appointed to the staff of Battelle Institute, Columbus, O., and assigned to its division of graphic arts research. Dr. Vaaler is a graduate of Luther College, Decorah, Ia., and received his Ph.D. from the University of Wisconsin. He is a member of Phi Lambda Upsilon, honorary chemical society, and Sigma Si, honorary scientific society.

Roland J. Lachapelle has joined the New England sales staff of E. P. Lawson Co. He is a graduate of the Montreal Technical Academy and now lives in Hartford, Conn.

Appointment of Everett A. Damon as assistant manager of domestic sales for American Type Founders Corp., has been announced by Robert G. Marquardt, vice president. He has recently been merchandising manager.

Reducing Dot-Etching

(Excerpt from technical panel discussion at the 41st Annual Convention of the Lithographers' National Association in Atlantic City, N. J., May 1946.)

Regarding the elimination of dot etching, William H. Falconer, of Eastman Kodak Co., said he did not think this probable in the near future but that the gradual evolution in methods would continue and the amount of etching required would also continue to be cut down. Improvements in sensitized materials of all manufacturers tend to reduce the amount of dot-etching. The contact screen, he stated, was brought out primarily to increase the quality of a negative because it gives a longer tone scale, spacing out every tone in the negative more easily than this can be done by a good man. Another factor in reducing the amount of work, Mr. Falconer pointed out, is the use of an exposure meter which can be hooked up to your camera and copy-board, and integrate or take care of the whole volume of light —intensity as well as time—cutting off the lights and closing the shutter when the exposure is the proper one. Michael H. Bruno of the Armour Research Foundation, told of work being done by one company to improve arc lights, by adapting the principle of the movie arcs to process photography, so that a constant arc lamp can be kept.

Magnesium for Back Boards

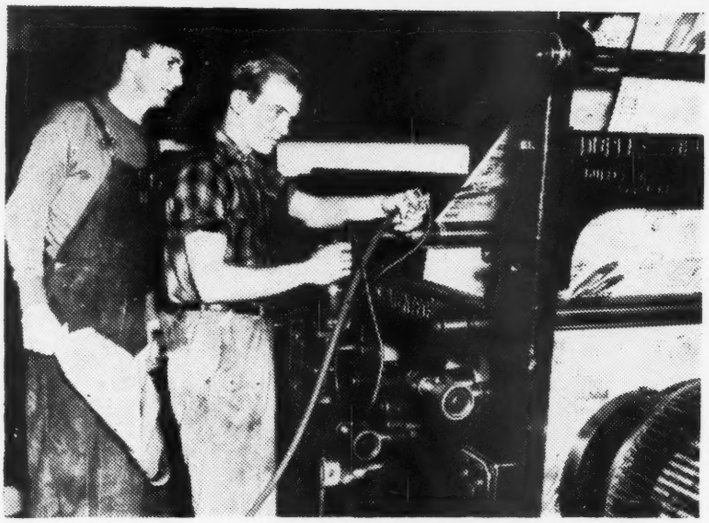
(Excerpt from technical panel discussion at the 41st Annual Convention of the Lithographers' National Association in Atlantic City, N. J., May 1946.)

A question addressed to Michael H. Annick of Rutherford Machinery Co., revealed that there are no basic changes in his company's photo-composing machines. However, the back boards are now so much larger to accommodate the larger press plates that they are now made of magnesium for easier handling and lighter weight. Negative holders will also be made of magnesium.

Air Conditioning

(From address delivered by Robt. W. Dickerson, Cleveland architect and engineer, before 1946 Montreal Craftsmen's convention.)

Adequate ventilation and air-conditioning are no longer regarded as luxury items but as direct contributors to profitable operation. No one can afford to ignore them or to minimize their importance. Aside from any humanitarian urge to make folks comfortable, or regard for scientific data which points to its desirability, so many plants have been equipped for comfortable occupancy that the printing executive who tries to get along without it will find his labor turnover troubles multiplied many fold. Employees will gravitate to where conditions are comfortable, and the man with the comfortable plant will soon have the pick of the crop on his pay roll.



The Paris (Tex.) *News* recently perfumed the paper of a special Fashion Edition by applying the perfume mixture to the web as the paper went into the final fold. Idea was that full body of the scent would be retained by trapping it in the folded paper. At left is Pressroom Foreman Curtis Richards. At right is Helper Willie Luster who is spraying the perfume mixture on the final fold. A spray apparatus was fitted to a quart milk bottle and hooked up to a compressed air line.

Perfumes the Paper —Not the Ink In Fashion Edition

ON March 2, the Paris (Tex.) *News* published a fashion special. Instead of perfuming the printing ink, as has been done by other executives from time to time, it was decided to perfume the paper itself as a promotional stunt. Curtis Richards, pressroom foreman, was consulted as to the best method of applying the scent to the paper.

Most newspapers, when printing special advertisements, have mixed the perfume into the ink. This method has been somewhat expensive. Mr. Richards states the ink is transferred along five distribution rollers before it reaches the newsprint, thus permitting evaporation of the perfume before it reaches the paper.

Deciding that it would be more effective if the perfume could be applied directly to the paper, Mr. Richards experimented by taking one pint of perfume, mixing it with four pints of wood alcohol, and spraying it onto the newsprint. He further reasoned that the spraying technique would be more effective if it were used going into the final fold, thus "trapping" whatever smell there is right inside the paper.

Mr. Richards hooked a sprayer onto the end of a line from the air compressor, a line usually used in cleaning out the folder. He placed a portion of his perfume "mixture" in a quart milk bottle and a pressroom assistant, Willie Luster, stood by the press and sprayed the mixture directly into the final fold.

Reports back to *The News* office later revealed that many of the papers retained a definite odor, although some subscribers reported it was not so noticeable in their papers.

New Supply Company

Harvey D. Morrison, former pressroom superintendent of the Portland (Ore.) *Oregonian*, has organized a company to enter the printing supply field. It will distribute in the northwest Wilsolite Plastic & Rubber products, American Publisher Supply, Inc., stereotype products; Monomelt and Goodyear equipment. The company is located at 1429 S.W. 14th St., Portland, Ore.

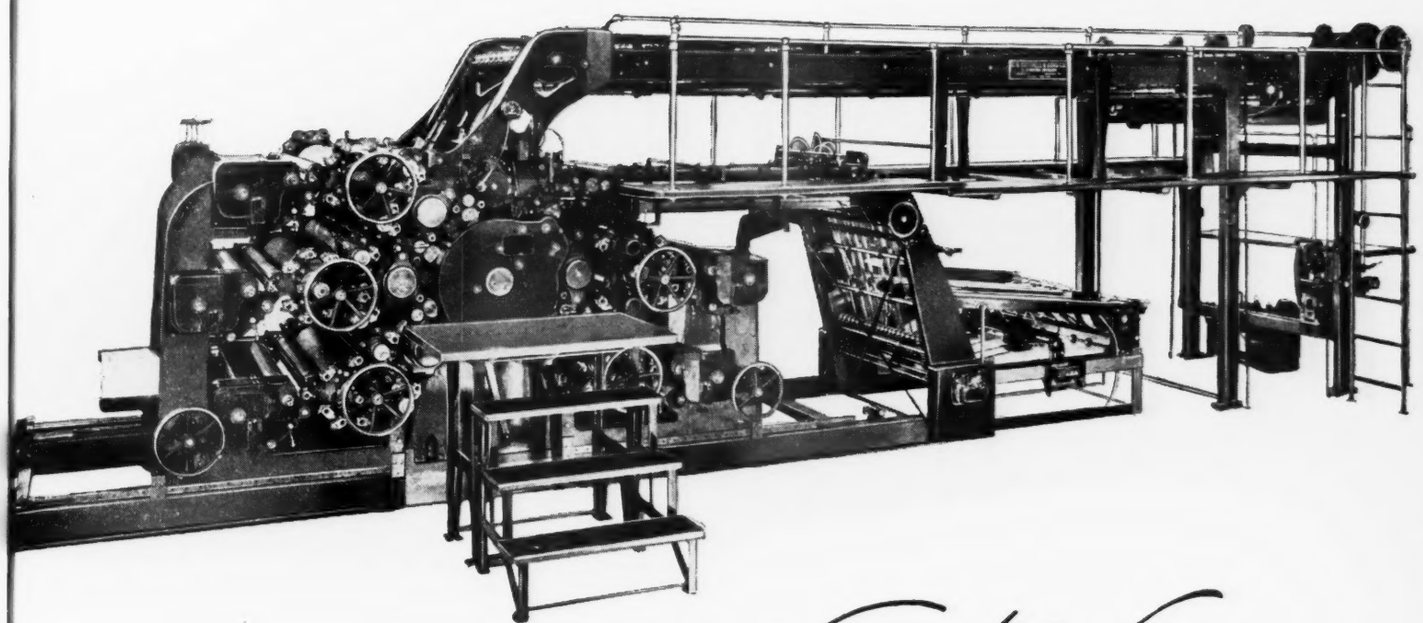
Craggs Appointed Distributor

Vernon H. Craggs, Inc., Baltimore 1, Md., has been appointed by A. R. Heathcote Co., Ltd., Sheffield, England, as representatives for Heathcote knives in the Western Hemisphere, with the exception of Brazil. The line includes steel knives for the paper, printing, box making, and woodworking industries. Through the Craggs organization, Heathcote is also a supplier of precision ground flat stock and plates in sizes up to 120 in. long by 36 in. wide.

Appoints Distributor

Protective Coatings Corp., manufacturers of Aquastop M-V-Bar and protective materials, has announced the appointment of Roberts and Porter, Inc., 402 S. Market St., Chicago 7, Ill., suppliers as national distributors of Aquastop M-V-Bar.

Five Color Printing



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Speed and Economy, combined with register will, more than ever before, be imperative requirements, in handling the volume which a recent printing survey promises for 1947.

This Cottrell Five-Color, sheet-fed rotary, built at our Claybourn Division, meets these requirements. It has a speed of up to 6000 sheets per hour—in five colors—with a maximum net production.

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Cottrell

OVER 93 YEARS OF GROWING WITH THE PRINTING INDUSTRY

Static Electricity

THE friction caused by passing of the paper through the printing press generates static electricity. Moist air dissipates the charge by virtue of being an excellent conductor of electricity, however, dry air retains the charge on account of being a good insulator. Static is experienced when the relative humidity drops below 35 percent and is responsible for sheet-feed hangups, for delivery troubles, for failure of joggers to function, and for clogging of folders.

There are several methods for overcoming static electricity in the pressroom. One common and effective method is by the use of electric neutralizers. These neutralizers consist of a series of fine metal points which are electrically charged by means of an alternating current. Thus they are alternately charged negatively and positively. The charge leaks away from these points and neutralizes any charges of an opposite sign which may be on the paper.

Another method of removing static electricity in the paper is to arrange a series of grounded conducting points such as fine wire brushes or tinsel wrapped around a wire close to the sheet. This method utilizes the well-known effect of the lightning conductor that points will dissipate electrical charges. A flame can act as a discharge point and the gas heaters fitted to many flat-bed presses help to discharge any electricity present in the paper. However, this method tends to reduce the moisture content of the sheet somewhat and thus renders it more susceptible to static electricity if subjected immediately afterwards to frictional forces.

Since static electricity occurs mostly with dry papers used in an atmosphere of low relative humidity, one way to minimize it is to ensure that the paper has a reasonably high moisture content and that the relative humidity of the pressroom does not fall below 35 percent.

There are several methods of measuring, and instruments for recording the relative humidity, among them are swinging and stationary psychrometers. Assmann wet and dry bulb thermometer and the hair hygrometer.—M. S. Kantrowitz, *Chairman, Research Committee*, Washington Club of Printing House Craftsmen. Reprinted from the *Capital Craftsman*.

RECENT IMPROVEMENTS

in the Linotype discussed by Engineer

By A. O. ALBIN*

**Engineering Dept., Mergenthaler Linotype Co. Abstract of address delivered before PNPA Mechanical Conference, Harrisburg, Pa., April 1947.*

THE functions of design and research for type faces were not stopped by wartime restrictions. Many new type faces have reached the final stages of design and punch manufacture. Manufacture of new matrix faces, must, however, await the reduction of present deficits in our matrix stocks. In normal times we carry some 30 millions of matrices to meet the demands of the world with over 2000 different sizes and faces of type. When one realizes that such type face resources mean the cutting of some 600,000 steel punches, then the magnitude of matrix service becomes very real.

Printers and publishers have so long taken it for granted that matrices could be furnished overnight as needed, that the present congested conditions have led to many difficulties. In recent weeks our matrix manufacture has grown sufficiently to permit shipments of over half a million matrices a week, and still our service must be aggravatingly delayed for some months to come.

New Alloys in the Offing

The development of metals and alloys proceeded rapidly during the war and there are some new alloys which will be used in future printing machinery. We are not going to have a Linotype made of aluminum or magnesium, but the development of certain light-weight high-strength alloys eventually will play some part in composing machinery design. At the present time magnesium is going through the same kind of growth and development as did aluminum some years ago. While some say that magnesium's susceptibility to corrosion has been licked by new finishes which will protect the metal, some applications are still in the laboratory stage.

Electronic Applications

I have frequently mentioned the word "electronics" in talking to mechanical groups and I want to mention it again not only because it is interesting, but because I believe that as time goes on we are going to see further application of the electronic principle to printing machinery. Several new and simplified electronic circuits show enough promise to warrant research work in an effort to develop and use this electronic principle to do certain things easier and better.

Machine Improvements

During the war, our Research Department continued to devise and test changes and improvements on Linotype machines. I want to mention some of these developments.

We have improved the toggle lock mechanism considerably on the Linotype Self-Quadder. We now have a sturdy three-piece lock and it has been designed and built to withstand the continuous locking action associated with the operation of the Self-Quadder. The heavy three-piece toggle lock plus other changes will assure longer operation of the lock without the necessity of readjustment. Together with this, we have simplified the vise jaw control rod and the increased pressure mechanism.

To make the Micro-Therm electric pot temperature control sturdier and to take care of fluctuating voltages, a micro-therm relay has been developed and has been applied to all new Linotype electric pots for some time. This is a small relay which is enclosed in a small metal box attached to the mold gear arm. Also located in this box is the on-and-off power control switch for the electric pot. By use of this small relay we have reduced the current load passing through the crucible switch to approximately 1% of its former value. The mu switch in its present function simply serves to energize the coil of the relay to close the relay contact points.

We have found that in some composing rooms use is made of an iron bracket attached to the mold gear arm to support feeder pigs for ready use. In such cases, the Micro-Therm Relay box can be moved to any suitable location simply by providing a longer BX cable.

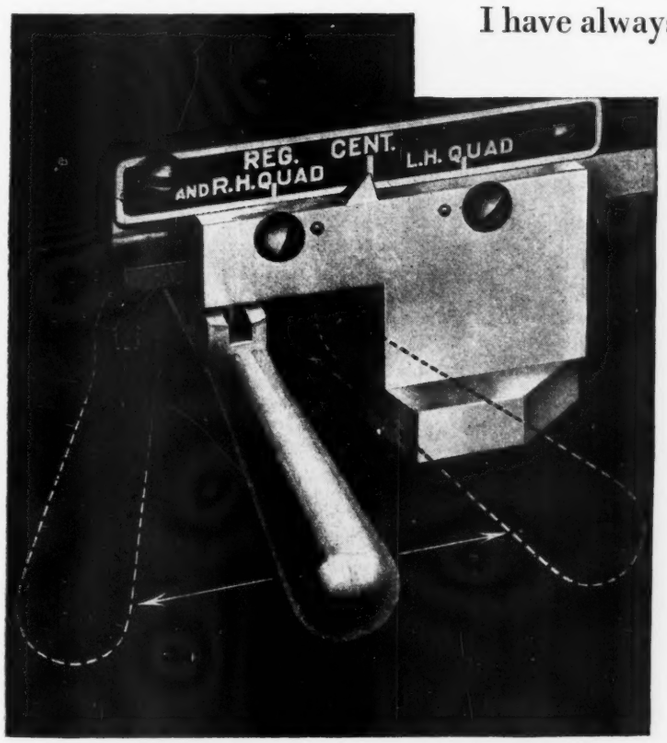
The Linotype downstroke knife wiper has been in use for quite a few years, and I am sure most of you men are familiar with it. In connection with this wiper we used what is called a knife wiper operating lever which was attached to the upper part of the first elevator slide. This operating lever was adjustable for three positions, regular alignment, auxiliary or head-letter alignment and 45 point alignment. To have the knife wiper wipe the side knives the full stroke, the operator moved a small knob in the operating lever to the correct location. Experiments showed that this adjustment was not always made by the operator, so we perfected an automatic arrangement so that now the knife wiper moves the full length of the knives regardless of the vertical position of the first elevator at the time of casting. A small automatic cam arrangement accomplishes this action.

"I *weighed values*"

"Since my first Linotype was installed, much water has gone over the dam. Increased business made plant expansion necessary and more and newer Linotypes have practically supplanted hand composition.

"Whenever we considered replacing units we analyzed our needs and studied equipment and methods. I realize again that the Linotype organization seems to have consistently anticipated industry needs.

"I feel that I can make this statement, since I have always weighed values."



MR. P's *new Blue Streaks are wisely equipped with many of the Linotype production aids that save time when time is at a premium.*

The Self-Quadder, for instance, makes quadding simple—whether copy calls for centering lines, or quadding left or right. It's all the same to a Linotype Self-Quadder—as easy as straight matter.

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Mixer Mechanism Improvements

The Linotype Mixer Models 29 and 30 have recently been improved by application of the simple mixer mechanism previously designed and used on the super-display mixer Models 35 and 36 having the wide standard 72 and wide standard 90-channel magazines. This new unit which moves the lower assembler front in or out to assemble matrices from either of the two magazines in operating position, is a sturdy and, we believe, a trouble-free unit so far as maintenance is concerned. In connection with this new device, a different method of controlling the mixer front has been used. Previously we had a quick mixing button and the operator had to look at the position of the lower assembler front to determine the position of that front so that he would be sure to assemble matrices from the proper magazine. The new construction involves a small lever which protrudes from the front of the assembler entrance cover. The operator moves this lever upward or downward to select matrices from either magazine in operating position. This arrangement gives the operator visual indication of the mixer control lever position.

Another development for mixer machines has been the double spaceband cam for use in the Linotype mixer keyboard. There are now two spaceband cams, one in the back row of keyboard cams and one in the front row. When the spaceband key is depressed by the operator, both cams will drop on the rubber roll, but they are so timed that when operating from the magazine in upper position, the spaceband is retarded slightly. The front spaceband cam regulates the drop of the spaceband when operating from the upper magazine, and the rear spaceband cam regulates the drop when operating from the lower magazine in operative position. The action is entirely automatic.

Anti-Squirt Device

There is a new safety device on Linotype machines which is probably familiar to some of you who have machines equipped for two-letter display matrices. This safety is designed to prevent a metal squirt if the 45 point alignment "flapper" is used with the wrong mold. Under such conditions the lower rear lugs of the matrices will not enter the opening in the body of the mold, but will strike that portion of the body just under the constant surface of the mold and the mold disk is prevented from assuming its full forward position. Under such conditions the pot pump plunger will not descend due to this new safety device. There is a metal strip across the front of the pot cover. The right hand end of this strip contacts an adjustable screw on the pot pump safety stop lever and this stop lever acts to force a lever underneath the pad on the pot pump lever to prevent its downward movement. This device is very sensitive and it can be adjusted so that any appreciable metal build up on the mouthpiece and back of the mold will be sufficient to prevent a cast and thus it aids in preventing back squirts.

Magazine Safety Device

Another development which has prevented machine tie-ups, is the safety device to prevent an operator withdrawing matrices from the wrong magazine in Mixer machines. When a Linotype Mixer is arranged, as it sometimes is, with one 72-channel in top and three 90-channel magazines for the three lower positions, mixing can occur only between the 72-channel and the adjacent 90-channel magazine. If the operator raises the magazines from this operative position, he is supposed to assemble the 90-channel matrices from the lower position. If sometimes he forgets and tries to assemble from a 90-channel magazine when it is in upper position, the matrices will all distribute to the lower magazine resulting in a tie-up. To overcome this we have devised a safety lever which cams the pivoting front outward whenever the magazines are raised from their lowest position. With the pivoting front moved away from its normal position, the escapement plungers are not depressed and no matrices can be assembled from the upper magazine. Whenever the magazines are in their lowest position, the pivoting front moves back to normal position. The safety lever which accomplishes this protection is controlled by the up or down movement of the lower magazine frame.

Refined Knife Block

The Linotype Quick-Opening Knife Block has come in for refinements and advancement in design. This Knife Block is used for overhanging figure work and after the operator has cast the first or overhanging slug, he must open the knife block to have the right hand knife clear the overhanging character. This is accomplished by the Quick-Opening Knife Block by pressing a lever which automatically opens up the right hand knife. With this construction it was found that under some conditions the right hand knife opened too wide thus permitting the overhanging slug to twist and cause poor ejection. To aid this condition, we have provided a small indicator lever with a knurled rod and by moving this indicator to certain figures stamped on the knife block casting, means are provided to limit the opening of the right hand knife so that the slug will be guided properly and the overhanging characters are not damaged. For instance, if the operator wants to open the knife block to 18 pt. for overhanging figure work, he sets the indicator on 18 pt. and the right hand knife will open to 20 pts. to clear the overhanging figure, yet to act as a guide.

Model 5 Linotype

A short time ago we introduced a new Model 5 Linotype. The present regular 90-channel magazine is still known as the Model 5 magazine because it originated on that machine many years ago. The model number designation of this model has remained the same throughout the years, but its construction has changed as the years went on and improvements became applicable. The new Model 5 now has all the features of our Blue Streak machines except the one-turn shift mechanism. It is essentially the same as the standard Model 31 Linotype except for the raising mechanism and its associated parts.

Fluorescent Keyboard Lamp

Some weeks ago, we announced the new fluorescent "Linolamp" for use as a Linotype keyboard light. This announcement was made after much research work had been done in an attempt to get the proper type of keyboard light. We had worked on this project before the war and many different models of fluorescent keyboard lights had been tried. We were stymied by the war because we could not get the proper materials but soon after the war ended, we went ahead and the result is the new fluorescent keyboard light.

This light has two 9 in., 6 w. fluorescent lights either the white or the daylight type. It throws sufficient light on the assembling elevator and on the operator's copy for all classes of work and it produces a much softer light for the operator.

One of the features of fluorescent lighting for the Linotype is that it is cool. No longer need you suffer headaches due to heat from incandescent light nor feel intense heat if you touch the light housing. There is a separate ballast with the Linolamp and we recommend that this ballast be attached to the rear of the column between the distributor bracket and the pot pump bracket. Of course it can be placed at other points, if desired. The light is attached to the intermediate channel of the Linotype in the same place as the present light and there is an adjustable arm arrangement to permit placing the lamp in any position desired by the operator.

House Magazine Layout

A BOOK has been published by the Champion Paper and Fibre Co. It is Volume II of the Library of Editorial Aids by K. C. Pratt, Editor of *Stet*. It is divided in three parts: format, design and typography. There is also a list of suggested material for further study.

In the section about format the rules for shape and size are set down by Mr. Pratt. The magazine, tabloid and pocket size publication are discussed from the standpoint of which is best for the purpose.

The part on design and layout is illustrated with examples of layout and suggestions to follow for good layout practice.

The chapter on typography treats the subject from the standpoint of identification and proper usage with illustrations of type and examples of type set columns in various point sizes. It is an 8½ in. by 11 in., 48 page book printed in two colors, bound in cover stock. Copies will be furnished upon request to *Printing Equipment Engineer*.

A Common Sense Approach to Your Color Printing Problems

THERE is no problem in newspaper publishing today whose solution holds more promise of reward for the individual paper, and an improved competitive position for the newspaper business as a whole, than that of supplying advertisers with color.

It is a mechanical problem, the problem of every mechanical executive of every first-rate paper in every major market, *regardless of whether or not that paper has yet run a page of advertising in color.*

For the report of the Committee on Color Advertising of the Newspaper Advertising Executives Association leaves no doubt that color is here to stay, and that a substantial increase in newspaper advertising revenues waits upon the further development and *more widespread availability* of color.

The problem of printing color at newspaper web press speeds is difficult and complex.

It is, in fact, a multiplicity of problems in art preparation, engraving, stereotyping, press operation, and ink formulation.

We know something of the magnitude, and the sheer cussedness, of many of the problems which confront you.

Particularly those of ink formulation.

For instance, no one knows better than we do, the inadequacy of selling you a can, or a drum, or a tank car of web press color, and stopping there.

We do have standard, web press colors.

Matter of fact, we participated in the research and development of the standard process colors adopted by the A.N.P.A., the A.A.A.A., and the A.N.A.

So you can, if you wish, just send for our web press color guide, make your selections from 36 proved, standard colors, and try them yourself.

But we sincerely hope you'll give us an opportunity to be more helpful than that.

We wish you'd call us in, give us a chance to become familiar with your press equipment, talk with us about the difficulties you've encountered or anticipate.

In short, we wish you'd make *your* problem, *our* problem.

Here, specifically, is what we can contribute to a joint attack on your color problems:

An extensive and *practical* knowledge of newscolor printing acquired through working for years with many newspapers successfully printing color.

Unexcelled laboratory facilities, including:

The Product Development Laboratories at each of our factories.

The International Printing Ink Research Laboratory equipped with commercial printing presses of every type, *including a high-speed, web-fed, perfecting news press.*

The Research Laboratory of the Interchemical Corporation, housed in its own seven-story building, with specialized laboratories devoted to the study of pigments, vehicles, color, and interrelated research on fundamental problems affecting printing processes.

These laboratories are equipped, in part, with a Rotational Viscometer of our own manufacture, an RCA Electron Microscope with a resolving power 50 times that of the best light microscope, a Bausch & Lomb Spectrograph, and a Hardy Recording Spectrophotometer — basic instrument of color analysis.

There is still another asset which we can bring to a joint effort to solve your color printing problems.

Imaginative thinking . . . the kind which met the demand for higher-speed web press printing of national magazines, not by effecting limited refinements in conventional inks, but by developing the entirely new heat-set printing process and its volatile solvent ink, *Vaporin**.

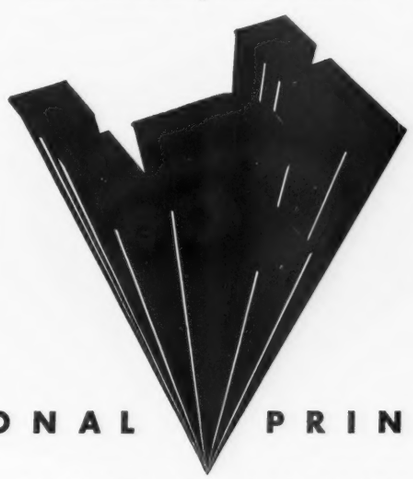
The Vaporin process *sets the ink in a split-second*, leaving it bright, sharply printed, and firmly bound to the fastest traveling web.

Continuing research on Vaporin indicates its successful adaptation to newspaper color printing in the near future.

Doesn't the utilization of these considerable resources seem like a common sense approach to your color printing problems?

International Printing Ink, 350 Fifth Avenue, New York 1, N. Y.

*Reg. U. S. Pat. Off.



INTERNATIONAL PRINTING INK

DIVISION OF INTERCHEMICAL CORPORATION

DEPARTMENTAL REPORTS . . .

of interest to mechanical executives included in Manager Cranston Williams' report to American Newspaper Publishers' Association

INCLUDED in the annual report of manager Cranston Williams to the convention of the American Newspaper Publishers Association are several departmental reports that are of interest to newspaper mechanical executives of member papers throughout the country. The ANPA convention was held at the Hotel Waldorf-Astoria, New York on April 22, 23 and 24.

Mechanical Committee

The report of the ANPA Mechanical Committee is devoted to a review of the of the 1946 mechanical conference in Pittsburgh and to comment about the appointment of a mechanical research committee. The committee comments upon the type of program presented at the 1946 conference, the program differing from previous ANPA Mechanical Conferences. In the report it is stated: "The . . . conference was for the most part confined to discussions of scientific research, developments in newspaper machinery, and the program was designed to present technological information that would tend to keep them (executives) abreast of the things that are new and that we may expect in the future."

The report is signed by Chairman J. L. Stackhouse and Messrs. Wm Baumrucker, jr., John L. Blake, A. H. Burns, T. A. Corcoran, R. R. Cranmer, Edwin H. Evers, W. L. Fanning, B. F. Garrity, M. A. Hagan, R. E. Lent, W. B. Pape, John W. Park, C. H. Ruth, Fred W. Schaub, J. J. Shea, and Russell S. Stratton.

Mechanical Department

W. E. Wines, manager of the Mechanical Department, comments that more than half of the bulletins issued by his department covered the report of the mechanical conference, there being 10 bulletins covering 250 pages. There were also a number of other bulletins issued by the department related to new developments in the industry, including the eleventh survey of page makeup and roll widths. The figures show a trend toward narrower type pages and correspondingly narrower paper rolls.

The department continues to watch new developments in the industry and makes reports to the membership. Among these are the Webtip device originated in the plant of the Boston *Herald-Traveler*, Lester Yeager's glass-bead press drawsheet at the Indianapolis *Star*, the Edison Margin Justifier and the Polaroid One-Step Camera. For the B Bulletins, the mechanical department has prepared articles about one-page-wide rolls.

The quarterly waste reports have appeared as usual. Mr. Wines comments that "Newsprint waste is always a serious item of expense and it can be kept at a minimum only by constant vigilance."

Newly elected officers of the Northwest Mechanical Conference for 1948. Left to right: President Charles N. Bertram, St. Paul *Dispatch* and *Pioneer Press* Pressroom Supt.; First Vice President Charles McGuire, Assistant Mechanical Supt., Minneapolis *Star and Tribune;* Secretary-Treasurer Vernon C. Eck, Printing Instructor, Dunwoody Industrial Institute; Second Vice President Joseph Cory, Head Machinist, St. Paul *Dispatch* and *Pioneer Press*.

Mechanical Research

The report of the committee on mechanical research was submitted and signed by Chairman Wm. Baumrucker, jr., Ralph R. Cranmer, R. E. Lent, C. H. Ruth and J. J. Shea. The committee is now engaged in selecting and securing the services of a full-time research director. Among other statements the committee makes is the following: ". . . an apparent slight delay in the start of actual research will, in effect, expedite progress of the work and it is sincerely hoped that the end of the first year will see constructive progress so that the committee and the ANPA will be able to evaluate the true worth and possibilities of the research program."

The report of the Mechanical Research Committee is concluded with the following statements:

"The committee expects that our first and more simple states of the research program will find ready adaptation to our business. On the other hand, there is precious little true research that the newspaper business could absorb immediately. By this is meant research of the type Eastman Kodak or Dupont or General Motors go in for. (By corollary, we should not have to and should not plan to spend very much money in the beginning.) We can and should make a beginning and have faith that we can follow the program through to success. Our modest beginning will undoubtedly not solve any major problems. It will, however, help to define those problems and bring to light and to active use some of the work that has already been done. It should help adapt that work to our problems. We may find mechanical devices worked out but perhaps not perfected or perhaps we may find by diligent searching, equipment of which we are not aware. This equipment, put to our use, may well be very helpful to the newspaper business. We expect that an intelligent director, guided to the best of the committee's ability, will be able to demonstrate to the ANPA on fairly short order that science and engineering can be of great value to the newspaper publighing business.

"The Association should be aware that more funds will be called for in the future. We will ask for the hope to obtain and to spend money just as fast as a carefully considered program can profitably spent it.

"Some day the newspaper business will spend a million dollars or more per year on engineering development and will see that expenditure pay big dividends. Our main concern now should be to lay wisely plans that will at some future time, lead to that day."

Western Newspaper Union finds GAS

Dependable and Economical

in Shop Operations

The Pittsburgh plant of Western Newspaper Union, first and largest newspaper syndicate in the country, is typical of the 35 branches of this far-flung organization, in its use of Gas fuel. In addition to using Gas for drying mats, the plant makes considerable use of Gas for melting metal for casting and in the linotype machines.

Year in and year out, the unfailing dependability of Gas fuel, and its economy both in operations and its contribution to lowered upkeep of equipment is appreciated here. Speed is another advantage credited to Gas in this plant where the temperature of the metal can be brought to 600°F. and two tons melted in half an hour.

If you are planning to install new equipment or modernize your present plant, be sure to look into Gas and Gas equipment for operations requiring heat. The Industrial Engineer of your local Gas Company will be glad to advise you, without obligation.

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THE TREND IS TO GAS

FOR ALL INDUSTRIAL HEATING

AMERICAN GAS ASSOCIATION

420 LEXINGTON AVENUE, NEW YORK 17, N.Y.

Wax Engraving

(Continued from Page 28)

scanning it from the emulsion side of the negative. This is necessary because all work on the wax must read properly.

This negative will be used to obtain a print on the surface of the wax, the image thus produced serves as a guide by the engraver for ruling lines and positioning the type used in the text or descriptive matter.

To produce the image, a coating is put on the wax, using a mixture of zinc oxide, albumen and silver nitrate. When the coating is dried, it is exposed under the negative to sunlight or artificial light, producing a print on wax that may be followed as a guide by the wax engraver. The photo print may be removed with a solution of soap water and ammonia.

Wherever possible, the rough is used to trace the image directly to the wax, using points and a fine needle in the process to draw fine guide lines on the wax surface.

Skills employed in mechanical drawing are an invaluable aid to the wax engraver for he uses the square, ruler, french curve and compass extensively.

Coating the Copper Plate

But how does the wax get where it is and where is it? Well, the base for the wax is usually a 16 ga. copper plate that has been thoroughly cleaned with a fine, powdered pumice and water. Besides cleaning the surface, this also imparts a surface to the copper which acts as an anchorage for the wax. A weak solution of silver nitrate is then flowed on to the plate, leaving a bluish cast on the copper.

Following this, the plate is thoroughly dried over an open flame, wiped clean, and the white wax applied while the plate is warm. Assurance of an even coating of wax is obtained by heating the under side of the copper plate over an open flame, and moving the plate around to distribute the heat evenly over the plate. The wax in stick form is held to the plate surface, the heat causing the wax to dissolve and run over the metal out to the edges. Trade practice and judgment dictates the amount of wax in conjunction with the degree of heat necessary to secure the exact thickness of the film of wax needed to obtain the best results.

After the wax film has been satisfactorily applied, it is ready to receive the work. It should be noted that the engraver cuts through the wax to the surface of the copper plate, removing only the wax. To enable the engraver to get the best results in his work on the wax, the plate is rested upon a stone slab the lower surface of which has an open gas flame playing on it.

Control of this flame imparts a constant temperature to the stone, keeping the wax pliable consistent with the best engraving results. If the wax becomes too cold it chips or breaks out, forming rough edges in its brittle stage. If the wax is too warm, of course, the coating tends to run together after the cutting edge has passed through it.

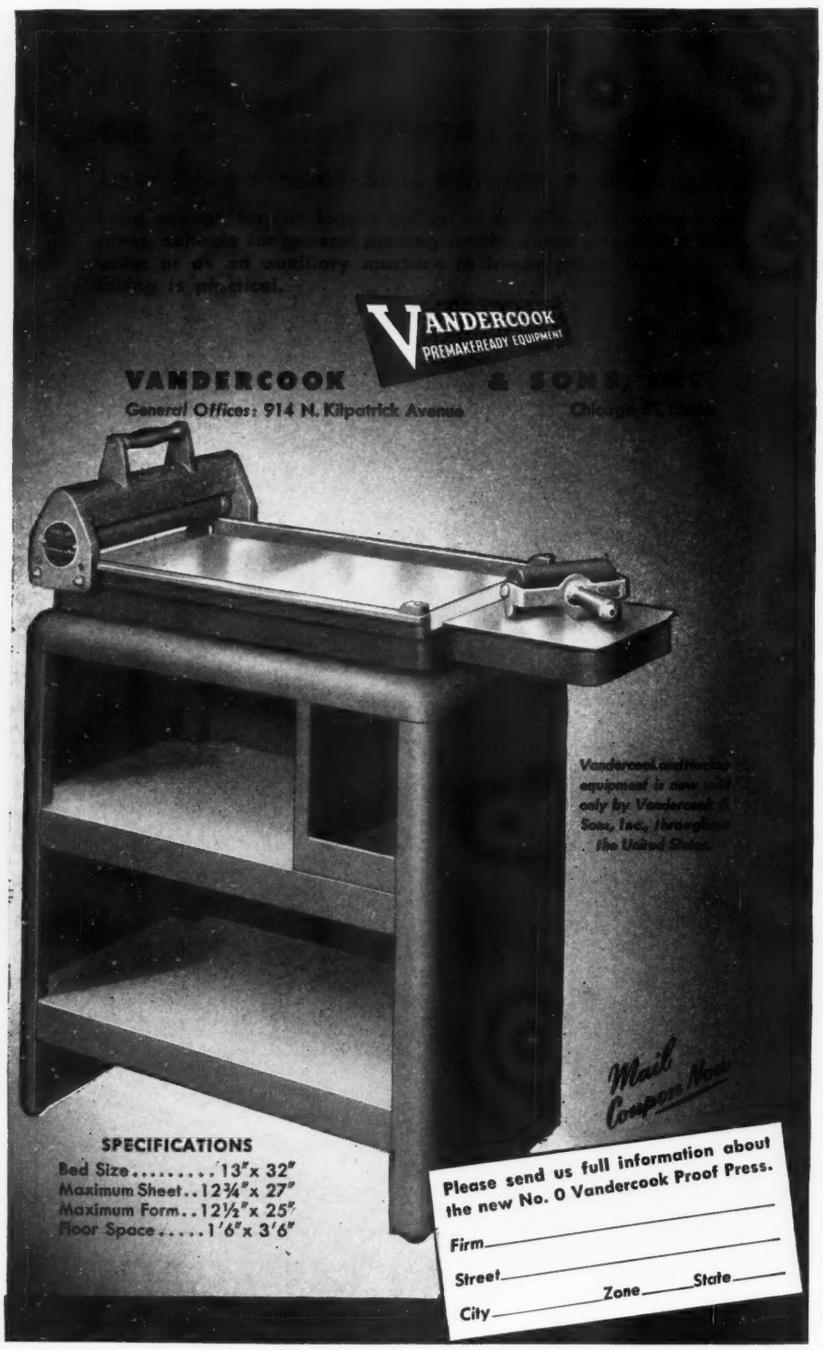
In cutting the wax, the engraver holds the tool pointing away from him, and he cuts in that direction—away from him. This resembles somewhat the operation on linoleum blocks, doesn't it? The cutting tool acts something like a wood chisel. Great care is exercised by the individual in sharpening his cutting tools —individual techniques differing. The operator supplies only enough pressure to remove the film of wax evenly from the surface of the plate, revealing the nitrate of silver coating that lies beneath.

Letterpress images are produced in reverse because of the nature of the process, for in printing the paper receives the ink from the image or cut, this operation reversing the image again, yielding a final correct print. But the wax engraving is the intermediary step between the original and the typographic press plate. Therefore, since the typo form must read backward and be in negative, the intermediary reads correctly, or just like the original. It becomes reversed in the making of the electrotype.

Setting the Lettering

The fact that the work reads correctly or forward on the metal for the wax engraver is right up his alley, for he can then work in positive form, using regular foundry type characters to produce the

(*Continued on Page 40*)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TECHNICAL BOOKS

The books listed below may be ordered through Printing Equipment Engineer, 1276 W. Third St., Cleveland 13, Ohio. Because of narrow handling margin, please send remittance with order.

GENERAL

MATERIALS HANDLING—By Harry E. Stocker. This book is of vital interest to mechanical and production executives in printing and publishing plants. While not written specifically as a treatise on materials handling in the printing plant, yet a great deal of its text will be of value in the handling of materials in the plant and out-going shipments from the plant. Bound in light buckram, 309 pages, many illustrations, size 6 in. by 9¼ in. Price $5.35

READING AS A VISUAL TASK—By Matthew Luckiesh, D.Sc. and Frank Moss, E.E. Most important research work to have been published in many years. For printers, designers, publishers, typographers and layout men. Readability of type, type faces, length of line, leading between lines, paper, ink, printing method and lighting are some of the factors involved in ease of reading. Size 5½ in. by 8⅝ in., 428 pages, bound in maroon gold stamped cloth. Price $5.

STANDARD BOOK ON ESTIMATING for PRINTERS—By Fred W. Hoch. Revised 1941 edition. This book is a primer for students and a reference for printers and estimators. Every printing plant should have a copy. Author explains all operations in commercial printing plant and shows production time allowance for each in hours and decimal hours. Size, 6 in. by 9¼ in., 268 pages, $3.75.

HOW TO HANDLE COLLECTIVE BARGAINING NEGOTIATIONS—Report based on a survey conducted by the National Foremen's Institute. Points out errors and fallacies which have tripped management in the past and how to avoid these mistakes in the future. Multon binder. 42 sheets, 9½ by 11½ in., $5.00.

HOW TO HANDLE LABOR GRIEVANCES—By Dr. John A. Lapp. Dr. Lapp discusses a practical treatment in the five part manual. Titles of the parts are: Background and History of Grievance Procedures; Grievances and How to Deal With Them; Grievance Procedures in Selected Industries; and Problems of Grievance Procedures. Bound in buckram cloth, 294 pages, 5½ by 8 in., $4.00.

THE ART AND TECHNIQUE OF PHOTO-ENGRAVING—By Julien J. Soubiran. Steps for the production of engravings are explained for the buyer of engravings or those who should be familiar with the process. Described are the types of photo-engravings, surprinting, copy preparation, color progressives, benday values and tone charts. Size 5½ by 7¾ in., 88 pages, $1.50.

GRAVURE

PHOTOGRAVURE—By H. Mills Cartwright. Covers all of photogravure's basic principles in concise and readable language. Rotogravure receives minor discussion but this is generally considered best textbook on photogravure process. Contains 202 pages, 34 illustrations, maroon cloth, size 6¼ in. by 9¼ in., $3.50 per copy.

STEREOTYPE

MANUAL OF STEREOTYPING—By Joseph Goggin. This 256-page book conveys technical information and manipulating procedure. Written by a practical stereotyper. Price $5.00.

OFFSET-LITH

LITHOGRAPHERS MANUAL—Compiled by Walter E. Soderstrom. Second revised edition. Technical information from copy to finished job. Nationally known technical men contributed the bulk of practical camera, platemaking and presswork information. Size 8½ in. by 11¼ in. Bound in red cloth, gold stamped. Many of the 368 pages are illustrated. Price $5 per copy.

THE SINGLE COLOR OFFSET PRESS—By I. H. Sayre. The purpose of this book is to offer a detailed technical explanation of the operation of the small single color offset printing press. It also carries recommendations for approved methods of printing technique and press care which apply to all offset printing. Much of the technical operating information applies to all makes of small offset presses.

Section I deals with Harris offset presses.
Section II deals exhaustively with materials used in offset printing.
Section III deals with ATF's Webendorfer single-color offset presses.

Illustrated with 99 figures in line and halftone; 284 pages; size, 6 in. by 9¼ in.; bound in blue cloth, cream stamped lettering. Price $6.

PHOTOGRAPHY AND PLATEMAKING FOR PHOTO-LITHOGRAPHY—By I. H. Sayre. This is an instruction book and an encyclopedia, both for the beginner and the experienced offset-lith platemaker. Revised edition. Illustrated. New section on color process platemaking techniques included. Price $6.00.

PRESSROOM

PRESSROOM PROBLEMS AND ANSWERS—By Fred W. Hoch. Might be considered a miniature encyclopedia since it contains answers to 334 pressroom problems which have been answered by Mr. Hoch. Written in language of journeyman pressman. Pressmen, production men, paper and ink manufacturers, electrotypers and photo-engravers will find this book of high utility when pressroom problems arise in which tendency is to lay blame on furnished materials used in pressroom production. Size, 6 in. by 9½ in., 258 pages, gold stamped blue cloth. Price, $3.50, plus postage.

HOW TO ADJUST WORK-UPS—By Wm. H. Lichter and Geo. F. Smalley. Booklet consists of 24 pages in which are analyzed and remedies are given for prevention and/or elimination of work-ups. Material written as result of actual plant experience. Size, 5¼ in. by 7¼ in. Price, $1 per copy.

HANDBOOK FOR PRESSMEN—By Fred W. Hoch. Book written by authority on all phases of flat-bed letterpress production for the practical pressman. Contains 248 pages, 26 illustrations and 24 charts, $3.50, plus postage.

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1276 West Third Street • Cleveland 13, Ohio

Wax Engraving

(Continued from Page 38)

lettering or text needed in the story. He does this by means of a stamping stick called the hand chase. The type is set in small sections and then by means of hand pressure and guide lines, the lettering is positioned to the wax surface. The amount of pressure used to get the lettering into the wax to the surface of the copper plate is again a matter of trade judgment. Short lines of type are pressed into position at a time so that the lettering remains uniform in thickness and alignment.

Where shading lines are required, a Rutherford ruling machine is employed. This machine is the same as that once used in lithography when engraving was carried out on stone. However, the diamond-tipped engraving tool is replaced with a square tool sharpened to a a fine point. The operator has the means with which to raise and lower the engraving tool at will, positioning the tool and then drawing the carriage to him. This drives the tool through the wax the desired amount. By raising the tool through means of an arm, the cutting is discontinued. Then turning a ratchet wheel a pre-determined distance, the operator moves the tool the distance required for the next line, the ratchet wheel setting this distance mechanically. Usually 140 lines to the inch are drawn for shading areas.

Where circular lines or dials are to be reproduced, a circular bed is used in the ruling machine to hold the wax-coated copper plate. This bed can be rotated mechanically with minute exactness, producing absolutely accurate dials. Since the purpose for which these printed dials will be intended permits of only a slight tolerance of variation in size, this method of wax engraving with its minimum of size-change is found best for dial reproduction and other subjects of like nature.

Building-up Operation

Following completion of the engraving, wax is built up around the cuts by means of a poker device through which gas is fed by a gas line, permitting a small flame to burn at the mouth of the poker. This flame is used to melt the wax in stick form, depositing it on the blank areas of the wax coating in little mounds where the engraving becomes the bottom of the electrotype. Known as the building-up operation, the procedure results in deep bottoms, thus minimizing the routing that may have to be done on the electrotype.

Photostats are made from the engraving when the customer desires a proof of his job before making electrotypes. Corrections and alterations can be made at moderate cost, should there be any, before the wax engraving is electrotyped.

It is said that more prints per plate can be made from electros made from wax engravings than from other methods. Two hundred thousand impressions can be obtained from such a plate with perhaps more, should the plate be properly faced. Then, too, as many duplicates as are wanted can be made from an original electrotype. Besides this saving, the method is very flexible, saving original art work, for in many instances the rough sketch alone will suffice the wax engraver. He is a particularly adept creator.

Strange as it may seem, wax engraving is one of the few remaining printing methods still employing hand methods. Manual skills and the trade judgment of the individual worker is still the major stock in trade of the wax engraver. Mass production methods have been passed up by this production method which still supplies certain types of printing plates for the letterpress industry.

Conference Dates

(with organization names and principal officers.)

ANPA Mechanical Conference—Palmer House, Chicago, Ill., June 9, 10, 11, 1947. J. L. Stackhouse, Chairman; Walter E. Wines, Manager, ANPA Mechanical Dept., 370 Lexington Ave., New York 17, N. Y.

Great Lakes Newspaper Mechanical Conference— Pantlind Hotel, Grand Rapids, Mich., Oct. 26, 27, 28. President Deo A. Padgett, Composing Room Supt., Cleveland *Plain Dealer;* Secretary Al. P. Oberg, Composing Room Supt., Flint (Mich.) *Journal.*

International Association of Printing House Craftsmen — Grand Union Hotel, Saratoga Springs, N. Y., Aug. 31, Sept. 1, 2, 3. Wm. H. Griffin, President, Griffin Bros., 447 Sansome St., San Francisco, Calif.; Secretary, Pearl E. Oldt, 702 Griswold St., S. E., Grand Rapids 2, Mich.

International Trade Composition Association — Book - Cadillac Hotel, Detroit, Mich., Aug. 28, 29, 30. Frank M. Sherman, Executive-Secretary, 1015 Chestnut St., Philadelphia 7, Pa.

Iowa Daily Newspaper Mechanical Conference—Hotel Burlington, Burlington, Ia., May 24, 25 and 26. President A. H. Schmeichel, Composing Room Supt., Muscatine (Ia.) *Journal;* Secretary Paul Kamler, Composing Room Supt., Clinton (Ia.) *Herald.*

Lithographers National Association—Saranac Inn, Saranac, N. Y., June 3, 4 and 5. Further information may be secured from the Association at 420 Lexington Ave., New York 17, N. Y.

National Association of Photo Lithographers — Book - Cadillac Hotel, Detroit, Mich., Oct. 22, 23, 24 and 25. Walter Soderstrom, Executive Secretary, 1776 Broadway, New York 19, N. Y.

National Graphic Arts Education Association — Hotel Morrison Chicago, Ill., June 16, 17 and 18. Byron G. Culver, president; Fred J. Hartman, educational director, 719 Fifteenth St., N. W., Washington 5, D. C.

New England Mechanical Conference—Hotel Statler, Boston, Mass., Nov. 8 and 9, 1947. President, Wm. F. Madden, Composing Room Supt., Worcester, (Mass.) *Telegram-Gazette.* Walter C. Crighton, Secretary-Treasurer, New London (Conn.) *Day.*

Northwest Mechanical Conference — President Charles N. Bertram, Pressroom Supt., St. Paul (Minn.) *Dispatch and Pioneer Press.* Vernon Eck, Secretary, 3725 48th Ave. S., Minneapolis 6, Minn.

PNPA 1947 Mechanical Conference—William N. Hardy, Manager, PNPA, 209-213 Telegraph Bldg., Harrisburg, Penna., Nicholas M. Fellman, Chester (Pa.) *Times,* chairman, PNPA Mechanical Committee.

Printing Industry of America — French Lick Springs Hotel, French Lick, Ind. Sept. 22, 23, 24 and 25. James R. Brackett, General Manager, 719 Fifteenth St., N. W., Washington, D. C.

Southeastern Mailers Association—Ashville, N. C. June 9 and 10, 1947. President Bruce Owens, Greensville (S.C.) *News;* Secretary-Treasurer Maxie H. Thompson, Spartanburg (S.C.) *Herald-Journal.* Open to mailers and those interested in newspaper mechanical production departments.

SNPA (Eastern Div.) Mechanical Conference—Walter C. Johnson, Manager SNPA, P. O. Box 1569, Chattanooga 1, Tenn. Chairman Executive Committee, I. J. Gardner, jr., Composing Room Supt., Chattanooga (Tenn.) *Times.*

SNPA (Western Division) Mechanical Conference — February 18, 1948. Location to be selected later. Chairman, W. F. Thompson, Austin (Tex.) *American-Statesman.* Secretary, C. W. Tabb, 723 Texas Bank Bldg., Dallas, Tex.

Acoustical Treatment

(From address delivered by Robert W. Dickerson, Cleveland architect and engineer, before 1946 Montreal Craftsmen's convention.)

Acoustical treatment is a must in many departments of the printing plant. "Noise fatigue" may have been regarded as a promotional "phobia" a few years ago, but is now recognized as a real deterrent to efficiency and a "builder-upper" of mistakes.

Patents

For The Graphic Arts Field

Covering patents issued March 4, March 11, March 18, March 25.

All new patents for the Graphic Arts are reported exclusively for Printing Equipment Engineer by Invention, Inc., an industrial patent research organization in Washington, D. C. Invention, Inc., presently has the only staff in the country that examines, in the U. S. Patent Office, the complete printed copy, drawing by drawing and page by page, every one of the several hundred new patents issuing each week. Printing Equipment Engineer is the only trade publication in its field offering a report based on this complete coverage. For copies of the patents listed here specify the patent numbers and send 25c for each separate patent, or 10c for each trade mark or design patent (stamps not accepted) to the Commissioner of Patents, Washington, D. C.

Binding, Cutting, Perforating

2,417,817 and 2,417,818. STAPLING AND WIRE STITCHING MACHINE of patent 2,417,817 gives assurance of a proper predetermined feed of wire. Hazards to the operator are eliminated by providing a fixed staple delivering nose against which work to be stapled may be held, with no moving part of the machine projecting out of the nose. The clinching anvil is adjustable and movable with equal clinching pressure regardless of the spaced adjustment of the anvil relative to the fixed staple-delivering nose and the space between the nose and clinching anvil is ordinarily too small for catching a finger of the operator. If desired, such spacing may be much greater but the clinching pressure will be the same as for any closer setting of the anvil. The unwinder control mechanism of patent 2,417,818 is for use on the stapling machine of the type disclosed in the preceding patent. It insures free withdrawal of wound wire to avoid undesired tension, should the wire become pinched or for other reason be held against free withdrawal. A guide, pivotally mounted adjacent the wire supply, has an upper extension over the wire supply and a lower extension toward the drawing mechanism. At the upper end, it rests by gravity on the wire supply and engages under the wire leaving the supply. The effect of gravity on the resting portion may be adjusted. The portion of guide below its pivot is resiliently flexible for yielding in response to increased tension on the wire. Guide is rotatable about its pivot in response to a predetermined increased tension thus to move the wire outward from the supply. Invented by Thomas J. Finn, West Roxbury, Mass. Unassigned. Applications May 2, 1945 and May 24, 1945, respectively. 18 and 8 claims respectively.

Composing Room Equipment

DESIGN 146,498. ORNAMENTAL DESIGN FOR A FONT OF TYPE consisting of script capitals only. The characters are fanciful Old English nd have the appearance of being stamped or jig-sawed out of sheet metal. The "G" looks rather like an "S" and the "H" like a "B". The "O" and "Q" are shield shaped. Invented by George E. Dietze, Pittsburgh, Pa. One-half assigned to Harry J. Wald and Leon Wald, both of Pittsburgh, Pa. Application April 13, 1946.

Feeding, Folding and Delivery

2,417,011. APPARATUS FOR DRYING FRESHLY PRINTED WEBS, delivered from letterpresses to a drying hood, is an improvement on the apparatus shown in patent 2,297,314 reported in PRINTING EQUIPMENT ENGINEER for November 1942 under "Printing Presses and Equipment." To overcome the fire hazard caused by routing the web through the hood directly in contact with the flames, this improvement provides for controlling the distance between the burners and the web as the rate of speed of the web varies. As slowing up of the web obviously increases the fire hazard, web distance from burners is increased as web travel slows up. The web is trained over rollers at the entrance and exit of the hood and by shifting the rollers in coordination with the web travel, the desired distance from the burners is maintained. Invented by Bernard Offen, Chicago, Ill. Unassigned. Application January 8, 1944. 2 claims.

(*Continued on Next Page*)

HAVE *You* GOT A PROBLEM?

Of course, you're not concerned with balancing problems . . . *or are you?*

How about the proper balance of alloys in your zinc sheets? Perhaps you have a problem of metal under high temperatures . . . stretching . . . proper color register? Perhaps you require a tough metal for long press runs or heavy mat duty.

Our laboratory has been helpful in solving many problems presented by perplexed engravers. If you are confronted with any difficulties in relation to your engraving metals, write to Atlantic Zinc Works Inc., 210 Van Brunt Street, Brooklyn 31, N. Y., and we will consider it a privilege to aid you in working out a satisfactory solution.

Many engravers have found the solution to their problems by using these important metals: ZOMO ELECTRIC ZINC for all regular work, A-Z ALLOY for long press runs and mat work, and the new, tough, featherweight ZOMAG (Dowmetal).

You can obtain these metals thru leading supply houses.

ZOMO ELECTRIC ZINC ◆ A-Z ELECTRIC ALLOY

Miscellaneous

2,418,007. METHOD OF REPRODUCING TEMPLETS OR PATTERNS uses a lithographer's proof press having adjustable work and reproduction beds with identically disposed matched pin holes in each bed and matched pins within the holes. The method comprises jig-drilling a stack of copy templet blanks to match the bed holes and the holes in the master templet, positioning of the master templet upon the pins of the work bed of the press and positioning a copy templet blank upon the matched pins of the reproduction bed of the press. The master templet is inked and an impression transferred from the inked master templet to each of the copy templet blanks. Invented by Joseph T. Barnes and William A. Collins, Columbus, O. Assigned to Curtiss-Wright Corp., Buffalo, N. Y. Application April 14, 1942. 2 claims.

DESIGN 146,501. ORNAMENTAL DESIGN FOR A VIBRATING JOGGER FOR PAPER SHEETS which is portable and consists of a flat rectangular table supported by a vibrating mechanism carried within a rectangular casing below the table surface. Recessed handles are formed in either end of the casing and an operating switch and a vibration regulator knob are mounted on the center front of the casing. Invented by Fred A. Hacker, Cranford, N. J. Assigned by mesne assignments, to American Type Founders, Inc., Elizabeth, N. J. Application March 28, 1946.

SEALED AIRTIGHT...TO REACH YOU RIGHT

We put just the right amount of moisture in Burgess Chrome Mats ... and we keep it there. It's essential that every package of Burgess Mats you open is factory fresh ... with the same moisture content it had when it left our plant.

That's why we go to extra lengths to pack them airtight. First they're wrapped in a sheet of waxed kraft paper. Around this is a special wrapper made of two sheets of kraft with asphalt between. Every opening is then carefully sealed with heavy gummed tape and the bundles are packed for shipping in specially made wire bound boxes.

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We don't take any chances. We make Burgess Chrome Mats right and they reach you the same way. Another reason, no doubt, why they have a nation-wide reputation for uniformly fine results and 100% satisfaction.

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Manufacturers and Distributors of Burgess Chrome and Tone-Tex Mats
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Plate Making

2,416,773. PHOTOPRINTING MATERIALS comprise light-sensitive layers on a suitable base or carrier which may be a textile, paper, cellulosic film, glass, or a metal surface. The light-sensitive layer contains a diazo compound suitable for forming a stable two-component diazotype layer, an azo dye coupling component and a member of the class consisting of sulfonated ortho-hydroxy-carboxylic acids of the benzene and naphthalene series. Invented by Maximilian K. Reichel, Easton, Pa. Assigned to General Aniline & Film Corp., New York, N. Y. Application January 4, 1945. 6 claims.

2,417,607. COPOLYMER OF VINYL AROMATIC HYDROCARBONS is said to be valuable for the production of many cast and molded products, including printing plates. Process of preparing the product comprises forming a mixture of a vinyl aromatic hydrocarbon, having a single vinyl group attached to the aromatic nucleus, and 0.15% to 50% of fumarodinitrile and heating the mixture to form the interpolymer. Invented by David T. Mowry, Dayton, Ohio. Assigned to Monsanto Chemical Co., St. Louis, Mo. Application April 26, 1944. 8 claims.

Printing Inks and Related Chemicals

2,416,676. PRINTING INK of the oxidizing type utilizing lower cost ingredients yet characterized by drying speed and printability approximating that of other inks. Ink comprises pigment dispersed in a vehicle, the major proportion of which is tall oil reacted with from 2% to 7% of its weight of hydrated lime. A minor constituent of the vehicle is a drying oil, substantially thinner in body than the limed tall oil, which is used to reduce the viscosity of the vehicle. Product is said to be of much lower cost than inks using linseed oil while giving approximately equal results. Invented by Dominic J. Bernardi and Robert T. Florence, Bronx, N. Y. Assigned to Interchemical Corp., New York, N. Y. Application March 9, 1944. 3 claims.

2,416,997 and 2,416,998. DECORATION OF FABRIC IN MULTICOLOR RELIEF is based on the printing of a water insoluble cellulose resist in combination with a suitable dye in the areas to be given a relief. Neighboring parts of the pattern are printed in one or more contrasting colors and all parts of the fabric, except those printed with the resist, are shrunk. Shrinking causes the resist-printed areas to be bowed out of the plane of the fabric, giving an enhanced effect. Printing may be done on an ordinary multicolor textile printing machine using the cellulose sol covered by companion patent 2,416,998. Sol is formed by saturating and intimately mixing a reducing oxycellulose with a solution of sodium zincate having a total sodium hydroxide concentration of about 6N and diluting the treated oxycellulose to bring the concentration down to about 2.5N. Invented by Frank C. Hewitt, North-

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With every proof pulled in an Imperialized plant, our neck is sticking out, for if that proof shows metal trouble, Imperial is responsible. And as soon as the first pound of Imperial Type Metal enters **your** shop, Imperial assumes the unconditional responsibility because the Imperial Plus Plan exercises a tight control over the condition of that metal.

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Nearly two hundred Acraplates in progressive plants throughout the United States and Canada have proven that rubber printing plates made on the Acraplate can reduce costs in these specific ways...

- Eliminate the profitless investment and costly storage of standing forms. Resinous matrices can be stored indefinitely in 1/4 the space and weigh only about 1/30 as much.
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- Yield definite saving in ink and make-ready costs ...often permit higher press speeds.
- Sheets lie flat after printing due to extremely light impression and elimination of embossing, thereby speeding up gathering and jogging.

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● Leading manufacturer of hydraulic presses—all sizes and types—stereotyping..plastic molding..processing..rubber vulcanizing..metal working..forging..metal extrusion ..special purpose.

ampton, and Charles Roy Cayen, Easthampton, Mass. Assigned, by mesne assignments, to The Aspinook Corp., Jewett City, Conn. Applications May 25, 1944 and March 24, 1944, respectively. 4 and 2 claims, respectively.

2,417,071. WATER-INSOLUBLE ORGANIC SALTS of this invention can be used in printing inks. In one process of preparation of the metal salts of organic carboxylic acids including such fatty acids as benzoic, glyceric, etc., an aqueous solution of a salt of such acid is contacted with an aqueous solution of a water-soluble salt of a metal, such as barium, nickel, etc. The ionic constituents of the water-insoluble salt are maintained in the contacting solutions in stoichiometric proportions. Invented by Arthur Ira Gebhart, Union, and John Ross, Ramsey, N. J. Assigned to Colgate-Palmolive-Peet Co., Jersey City, N. J. Application August 14, 1943. 11 claims.

2,417,515. TEXTILE PRINTING AGENT fixes color and permits clean edging and brilliant coloration. Gelatin is added to a starch and its inhibitor to adapt it for printing use. One example given is a dry crystalline compound which is prepared by dissolving in water a carboxyl radical, such as stearic acid, an alcohol with an acid such as acetic, and hexamethylenetetramine. Invented by Henry T. Neumann, New York, N. Y. Unassigned. Application November 6, 1940. 8 claims.

Printing Presses and Equipment

2,417,011. APPARATUS FOR DRYING FRESHLY PRINTED WEBS. (See under "Feeding, Folding and Delivery.")

2,417,496. REGISTERING DEVICE for predetermining accurately the positions of flexible printing plates which are to be mounted in prescribed position upon the cylinders of electronographic or other printing presses. The registering device comprises a cylinder or curved registering surface on which the plate is registered and a removable curved holder which bears a definite known position relative to the cylinder. This holder, which may be made of thin, resilient sheet metal, serves to transfer the plate, thus registered, to the printing cylinder and mount it in the prescribed position. Invented by William C. Huebner, New York, N. Y. Unassigned. Application August 22, 1944, 16 claims.

For Patent Research in the U. S. Patent Office, or a prompt estimate on any type of search, address INVENTION, INC., Munsey Bldg., Washington, D. C.

IPI Essay Winners

The 11th Annual IPI Essay Contest prize winners were announced recently by Fred J. Hartman, educational director of the National Graphic Arts Education Association which sponsors the annual competition in cooperation with International Printing Ink. There were 5708 high school students in the United States and Canada that competed for 33 cash prizes and one silver cup.

Winner of the $500 first prize is David C. Dry, 17 year old senior at Timken Vocational High School, Canton, O. Norman Joly, Ottawa Technical High School, Ottawa, Ontario, won second prize of $175 and a $20 award for excellence in printing the essay. Third prize of $50 goes to Eva Kallin, 14 year old student of Aptos Junior High School, San Francisco, Calif. Louise McKee, 13 year old of J. C. Murphy Junior High School, Atlanta, Ga., is winner of the $25 fourth prize. Theodore Prusinski of Philip Schuyler High School, Albany, N. Y., wins fifth prize of $10. The subject of this year's contest was *Printing's Place in the Post War World.*

David C. Dry, winner of $500 first prize in the IPI Essay Contest, is a senior at Timken Vocational High School, Canton, Ohio.

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Hanging up RECORDS for long hard runs
Imperial's Register-Redibak Zinc is tough—but not brittle. This favorite of engravers everywhere, produces fine lines and highlight dots that stand up under long mat runs without distortion. But Register-Redibak is soft enough for easy routing and it hand-tools without chipping.
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Cuts that get out-of-position between make-up and mat rolling are a thing of the past in plants using Booth's Zink Cut Cement.

This handy, easy to use special purpose adhesive saves trouble and speeds forms through the shop. Booth's Zink Cut Cement comes in tough, ready tubes. It fastens any kind of cut or shell cast stereo to either wood or metal base—firmly—economically.

See what Booth's Zink Cut Cement will do in your plant when you have a supply for your comps and make-up men. It is the fastest cut mounting method.

PRICES: In the United States: 75c pe tube, $6.00 a dozen tubes, $5.00 a dozen in gross lots.

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BLACK RUBBER ROLLS

The country over, sweet, smooth-running line-casting machines have Booth's Black Rubber Rolls on their keyboard roll shafts. They afford maximum cam tread friction and true, even diameter throughout their long life when installed properly. Get Booth's Black Rubber Rolls . . . They bring new life to sluggish keyboards.

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Vari-Typer* looks like a typewriter...is operated like one...has the same standard keyboard. And it's inexpensive. But that's where the resemblance ends. For Vari-Typer is a Composing Machine that gives you the professional variety, crispness of type-set matter, and clean appearance.

It's the changeable type that does it—over 300 styles and sizes. Each of these fonts is complete on a small individual metal segment. You can change fonts in a second or two from, let's say, an 19 point heavy gothic headline...to a 12 point bold subhead...to an attractive, compact 8 point text type. You can spice your copy with *italics*...you can space it as you like, horizontally and vertically.

Copy unrolled from Vari-Typer is sharp, clean reproduction copy, with automatically justified right and left margins. It is ready to run off in offset or duplicating machines. Ready to distribute the same day if you wish!

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Ask us for a free demonstration at your office or plant...write for a variety of Vari-Typed samples...to Dept. PE-5, Ralph C. Coxhead Corp., 333 Avenue of the Americas, New York 14.

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Eastern products will help you get sharper, better looking papers out faster. To meet today's schedules, mat molding must be quick, sure and reliable. Here are Eastern Newspaper Supply products that will help you do just that—

Eastern TRU-MOLD Cork Molding Blanket with just the right amount of Bakelite to insure perfect density. Guarantees maximum "come-back" for sharp, clean impressions, durability and minimum edge cracking.

Tru-Molds can be had in either "Medium," "Medium-Hard" or "Hard" density in standard sizes and 21 x 25 x $\frac{3}{16}$".

"FLECTO" Gummed Backing Felt assures clean cut molds. Sticks flat to the mat regardless of scorching heat. Does not crack, slip or crystallize. "Flecto" is uniform, soft, pliable. It does not peel or separate in layers, but conforms to and shrinks with the mat.

Available in sheets or strips in the following sizes:

Gauges .012, .025, .030 (Green) sheeted 18" x 24".

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Gauges .040, .045 (Green) sheeted 18"x22".

Gauges .050, .060 (Gray) sheeted 18"x20".

Cut into strips 9" or 18" long and $\frac{1}{8}$" to 1" wide at no extra charge.

DEEPMOLD CREEPER — New — Superior. The most advanced development in molding creepers. Deepmold gives sharp, clean halftone reproduction, does not cut or spread column rules—molds extra deep bolsters.

Sizes	.062 Prices	.090 Prices
20x24x"	$3.50 ea.	$4.75 ea.
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EASTERN NEWSPAPER SUPPLY

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Low Temperature Welding Technique Used in Modifying a Stereo Mold

USE of a low temperature welding technique to modify its stereotype plate casting box has proved satisfactory to the Portland (Ore.) *Oregonian* after continuous use of the box for six months. During this time the modified Junior Autoplate Casting machine has been working on the heaviest production schedule in the history of the paper.

The welding rod used was a special type of alloy containing approximately 60 per cent silver. A product of the Eutectic Welding Alloys Co., it is sold under the trade name Eutectic 1800.

The modification in the casting box was necessary when the paper changed from a 66½ in. to a 66 in. paper roll. Moving of the cut-off saws on the Junior placed them over a rib channel in the box. This necessitated filling up the channel so that the cut-off saw would function properly with respect to the rib on the plate.

"Our problem was to fill in this rib without causing distortion of the casting box and thus effect the printing quality of the plate," said William T. Moir, maintenance superintendent of the *Oregonian* in discussing results of the test. "After we had used this new alloy and turned down the core in the lathe we found no warpage of any kind. Use of the equipment for six months since the change proves this type of alloy will stand hard usage and high temperatures."

The low temperature at which the alloy is applied is credited with the success of the method. This particular job was done at a working temperature of 940 deg. F.

Using another welding rod, also a product of the Eutectic people, one of the cores was also built up ¼ in. at the lower end, according to Moir. In this case, a melting temperature of 1000 deg. F., was used and a rod of slightly different alloy was employed.

"Properly used, these low temperature alloys offer many possibilities for repair and modification of printing equipment," said Mr. Moir. "We used them recently in an emergency gear repair with success."

Faced with the task of modifying the core of its Junior Autoplate stereotype plate casting machine, the Portland (Ore.) *Oregonian* used a welding rod sold under the trade name of *Eutectic 1800*. The change was necessary because of reduction in paper roll width from 66½ in. to 66 in. Containing a high percentage of silver, the rod has a melting point of 940 deg. F. Here, Fred Lang of *The Oregonian* stereotype department (left) and Harvey Morrison, *Oregonian* press foreman, inspect the weld after six months' usage.

If it is obtainable, *Printing Equipment Engineer* will help you find the source of supply.

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PAPER TRIMMING KNIVES

● They give 25 to 40% longer service. Give better cutting at lower cost—proven under severe test in America's largest paper mills and printing plants. Made of a new alloy to withstand heavier cutting and still hold a keen edge for long runs. Ground with a slight concave and taper on the face for clearance—smooth cutting.

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A man need not be a sensational shotmaker to rate among the golfing leaders, provided he does not hook or slice—avoids the rough and water hazards.

Likewise, Certified Dry Mats that keep a stereo plant out of mat troubles, through their unfailing uniformity, would be a good time-saving investment even without their notably easy molding, quick scorching and low temperature casting.

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Certified DRY MATS

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The MATRIX LUG TOOL

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24½" x 28½"

HEIGHT
38½" with 1" Adj.

LEGS
1¾" Outside Diam.

CASTERS
4" Ball Bearing Swivel. Rubber Tires with 1⅛" Face

WEIGHT
155 LBS.

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Welded Steel Construction—Rigid—No Parts to Shake Loose—Stronger but Lighter

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- A large table mounted on a rigidly constructed column.
- Convenient alignment and tightening of driving belts.
- Running parts designed to reduce vibration.
- Sufficient speed at cutter edge to route fine or rough out without reducing speed.
- Precisely fulcrumed elevating mechanism assures immediate reaction to pressure on the foot pedal.
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- Speed and balance are built into Royle Routers.

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BOOKS

RECEIVED

The Art and Technique of Photo-engraving

THIS 88 page book, *The Art and Technique of Photo-engraving*, is now in its second edition. The authorship of the book is credited to Julien J. Soubiran. The author intends this book to be an explanation of the steps necessary in the production of engravings. It is not a technical treatise nor is it an instruction book howing how to produce engravings. All of the steps necessary in the production of engravings, however, are explained both by illustration and text. The buyer of engravings and those who should be familiar with them in any branch of the Graphic Arts certainly should find this book to be highly satisfactory.

Brief historical account is included. In addition to the well explained steps in the process, the author discusses various types of photo-engravings, surprinting, copy preparation, color progressives, benday values and tone charts, explains the three printing processes and furnishes a very complete glossary of terms with definitions.

Pages of the book are packed with clear cut and informative information. It is well written.

The Art and Technique of Photo-engraving —By Julien J. Soubiran. Size 5½ in. by 7¾ in.; bound in hard boards with pasted label; 88 pages; many illustrations. Introduction by Louis Flader, Editor of the *Photo-Engravers Bulletin*. Price, $1.50 per copy. May be ordered through *Printing Equipment Engineer*.

New Federated Emblem — The Federated Metals Div. of American Smelting and Refining Co. has a new trade mark and slogan to point up the scope of the company's products, application-engineering work, research development, distribution network and technical-service facilities. The trade mark and slogan will be accented in trade paper advertising, display, sales and engineering correspondence, and all other contacts with nonferrous metals users.

Printing Ink Fellowship

Dr. Martin D. Whitaker, president of Lehigh University, announced the establishment of the Francis MacDonald Sinclair printing ink research fellowship at the University by Mrs. Jennie H. Sinclair with a gift of $2000. The first printing ink research fellowship in the nation is in memory of the founder and former president of Sinclair and Valentine, makers of printing inks, varnishes and dryers. It will be administered by the National Printing Ink Research Institute at Lehigh to further the activities of the program established a year ago.

Miehle Service Dealer

Miehle Printing Press & Mfg. Co. announces appointment of R. W. Hartnett Co., 1025 Cherry Street, Philadelphia, Pa., as authorized Miehle service and repair dealer in eastern Pennsylvania and Delaware. R. W. Hartnett Co. will erect new presses and handle service and repair work in the area. Repair parts will be carried in stock to provide quickest possible service to printers. In emergencies, printers may call Race 5964 or Walnut 0730, Philadelphia, for prompt service.

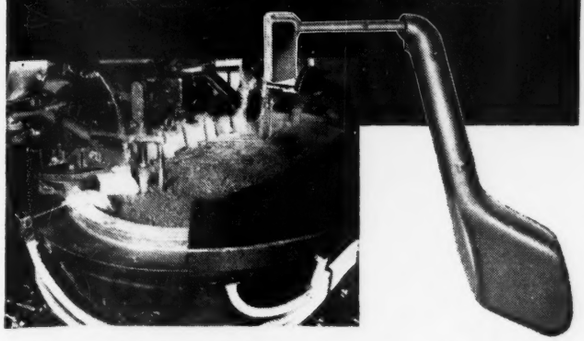
PNPA Conference

(Continued from Page 27)

the organization to the best of our ability toward a common end, our newspaper is going to run into trouble."

Richard E. Beeler, advertising manager of the Altoona *Mirror*, aroused considerable comment when he mentioned

MODERN, EFFICIENT STEREOTYPE MELTING DEMANDS G-E IMMERSION HEATERS



More and better castings . . . cleaner, cooler working conditions . . . minimum dross—get all these at low cost with G-E Calrod* immersion heaters in your stereotype-melting furnace. Immersed directly into the stereotype metal, these heaters give faster heat and more uniform heat distribution. With automatic controls, they provide closer, more efficient temperature regulation.

Whether you are modernizing your present plant or planning a new one, you'll want to investigate how you can convert quickly and easily to the modern electrical way of stereotype melting. The Heating Specialist in the nearest G-E Office will be glad to discuss this with you.

In the meantime, **write for free bulletin GEA-4653.** *General Electric Company, Schenectady 5, N. Y.*

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DEEP MOLD

CLEAN HIGHLIGHTS

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WOOD FLONG CORPORATION

HOOSICK FALLS • NEW YORK

New York City Office:

551 FIFTH AVENUE, NEW YORK 17, N. Y.

Our subsidiary plant at Concord, N. H., where *the*

CUSHMAN *Offset* MOTOR

is made has been moved into a larger plant. The resulting increase in production permits prompt delivery of this fine motor.

Have you the Cushman Parts Book?

write:

Cushman Motor Division

LINOTYPE PARTS COMPANY

INCORPORATED

SOUTH HACKENSACK, N. J.

SAVE TIME!

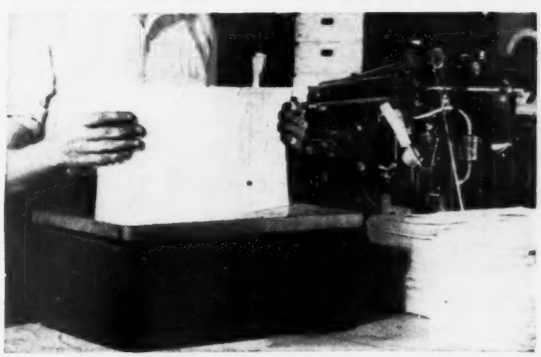
and do a better job

with

SYNTRON

"VIBRATING"

PAPER JOGGERS



3600 vibrations per minute make short work of aligning stock—from onion skin to heavy board.

Write for illustrated folder

SYNTRON CO., 577 Lexington, Homer City, Pa.

PROMPT DELIVERY

Heavy Duty

NEWSPAPER TURTLE

TOP
24½" x 28½"

HEIGHT
38½" with 1" Adj.

LEGS
1¾" Outside Diam.

CASTERS
4" Ball Bearing Swivel. Rubber Tires with 1⅛" Face

WEIGHT
155 LBS.

Price $96.50

Welded Steel Construction—Rigid—No Parts to Shake Loose—Stronger but Lighter

AMERICAN PUBLISHERS SUPPLY, Inc.
P. O. Box 924 LYNN, MASSACHUSETTS

The Royle Router

- A large table mounted on a rigidly constructed column.
- Convenient alignment and tightening of driving belts.
- Running parts designed to reduce vibration.
- Sufficient speed at cutter edge to route fine or rough out without reducing speed.
- Precisely fulcrumed elevating mechanism assures immediate reaction to pressure on the foot pedal.
- Changing cutter heads a matter of seconds.
- Speed and balance are built into Royle Routers.

JOHN ROYLE & SONS

Established 1855

10 Essex Street Paterson 3, N. J.

BOOKS

RECEIVED

The Art and Technique of Photo-engraving

THIS 88 page book, *The Art and Technique of Photo-engraving*, is now in its second edition. The authorship of the book is credited to Julien J. Soubiran. The author intends this book to be an explanation of the steps necessary in the production of engravings. It is not a technical treatise nor is it an instruction book howing how to produce engravings. All of the steps necessary in the production of engravings, however, are explained both by illustration and text. The buyer of engravings and those who should be familiar with them in any branch of the Graphic Arts certainly should find this book to be highly satisfactory.

Brief historical account is included. In addition to the well explained steps in the process, the author discusses various types of photo-engravings, surprinting, copy preparation, color progressives, benday values and tone charts, explains the three printing processes and furnishes a very complete glossary of terms with definitions.

Pages of the book are packed with clear cut and informative information. It is well written.

The Art and Technique of Photo-engraving —By Julien J. Soubiran. Size 5½ in. by 7¾ in.; bound in hard boards with pasted label; 88 pages; many illustrations. Introduction by Louis Flader, Editor of the *Photo-Engravers Bulletin*. Price, $1.50 per copy. May be ordered through *Printing Equipment Engineer*.

New Federated Emblem — The Federated Metals Div. of American Smelting and Refining Co. has a new trade mark and slogan to point up the scope of the company's products, application-engineering work, research development, distribution network and technical-service facilities. The trade mark and slogan will be accented in trade paper advertising, display, sales and engineering correspondence, and all other contacts with nonferrous metals users.

Printing Ink Fellowship

Dr. Martin D. Whitaker, president of Lehigh University, announced the establishment of the Francis MacDonald Sinclair printing ink research fellowship at the University by Mrs. Jennie H. Sinclair with a gift of $2000. The first printing ink research fellowship in the nation is in memory of the founder and former president of Sinclair and Valentine, makers of printing inks, varnishes and dryers. It will be administered by the National Printing Ink Research Institute at Lehigh to further the activities of the program established a year ago.

Miehle Service Dealer

Miehle Printing Press & Mfg. Co. announces appointment of R. W. Hartnett Co., 1025 Cherry Street, Philadelphia, Pa., as authorized Miehle service and repair dealer in eastern Pennsylvania and Delaware. R. W. Hartnett Co. will erect new presses and handle service and repair work in the area. Repair parts will be carried in stock to provide quickest possible service to printers. In emergencies, printers may call Race 5964 or Walnut 0730, Philadelphia, for prompt service.

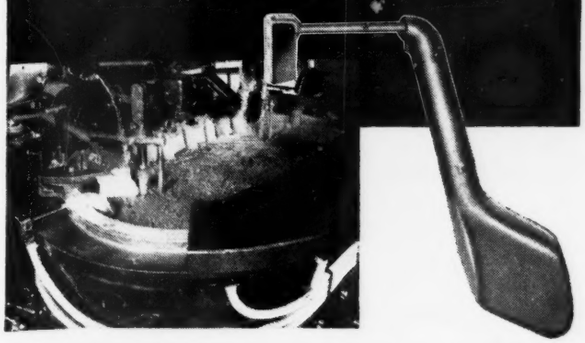
PNPA Conference

(Continued from Page 27)

the organization to the best of our ability toward a common end, our newspaper is going to run into trouble."

Richard E. Beeler, advertising manager of the Altoona *Mirror*, aroused considerable comment when he mentioned

MODERN, EFFICIENT STEREOTYPE MELTING DEMANDS G-E IMMERSION HEATERS



More and better castings . . . cleaner, cooler working conditions . . . minimum dross—get all these at low cost with G-E Calrod* immersion heaters in your stereotype-melting furnace. Immersed directly into the stereotype metal, these heaters give faster heat and more uniform heat distribution. With automatic controls, they provide closer, more efficient temperature regulation.

Whether you are modernizing your present plant or planning a new one, you'll want to investigate how you can convert quickly and easily to the modern electrical way of stereotype melting. The Heating Specialist in the nearest G-E Office will be glad to discuss this with you.

In the meantime, **write for free bulletin GEA-4653.** *General Electric Company, Schenectady 5, N. Y.*

*Reg. U.S. Pat. Off.

GENERAL ELECTRIC

675-161

FAITHFUL MIDDLETONES

STAYBACK

SOLID BLACKS

When a greaseball pulls his slip — he looks for a shop where Wood Dry Mats are on the job!

SAMPLES SENT FREE TO YOUR SPECIFICATIONS

DEEP MOLD

CLEAN HIGHLIGHTS

PLASTICITY

WOOD FLONG CORPORATION

HOOSICK FALLS • NEW YORK

New York City Office:

551 FIFTH AVENUE, NEW YORK 17, N. Y.

Our subsidiary plant at Concord, N. H., where *the*

CUSHMAN *Offset* MOTOR

is made has been moved into a larger plant. The resulting increase in production permits prompt delivery of this fine motor.

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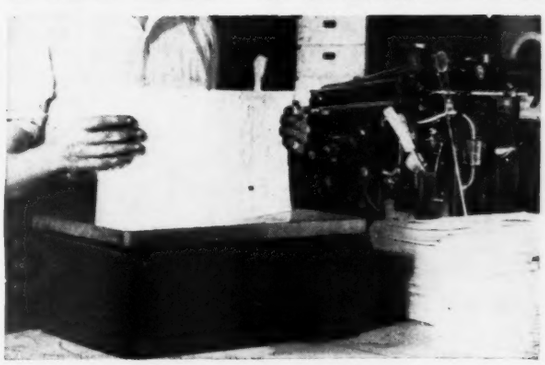


3600 vibrations per minute make short work of aligning stock—from onion skin to heavy board.

Write for illustrated folder

SYNTRON CO., 577 Lexington, Homer City, Pa.

COMPOSING ROOM FOREMEN

—everywhere, agree on the accuracy, sturdy construction, and safety of the C & G Saw Trimmer. Positive clamping assures speed of operation, cutting accuracy, safety. Built for years of efficient, economical operation.

IF YOU ARE CONSIDERING the purchase of any other Saw Trimmer than the C & G, by all means **wait** for **important news** in our June advertisement in "Printing Equipment Engineer!"

THE MORRISON COMPANY 125 W. Melvina Street MILWAUKEE 12, WIS.

Formerly Milwaukee Saw Trimmer Corp.

the plan in force at his paper concerning deadlines for receipt of advertising copy.

Beeler stated, "Here briefly is a display advertising copy deadline plan put into effect many years ago at the Altoona *Mirror*. It has eliminated one of the biggest bones of contention around the newspaper office. All display advertising copy, mats, and cuts must be in the composing room by noon, the day previous to publication. It's at 12 o'clock noon, day before publication deadline that really works."

Mergenthaler's Albin Reports

Speaking of the delay in delivery of matrices, Archer O. Albin, of the Mergenthaler Linotype Company stated, "The Linotype Company continues to combat many adverse factors that have retarded manufacture. Of course, all manufacturers today are faced with somewhat similar factors. Our factory is working two shifts a day in an effort to eat into the backlog of orders for machines, for replacement parts and for matrices.

Composing Room Equipment and Layout was discussed by E. A. Damon, of American Type Founders, and Neal E. Dyer, mechanical superintendent of the Camden *Courier-Post* talked on *New Plant Ideas*.

ADAMSON HYDRAULIC PRESS

for Plastic & Rubber Plates

24 x 24, 12" Ram

Special Steam Jackets

Attached to both Platens.

★

WESTERN NEWSPAPER UNION

1336 Cherry Street,

Philadelphia 7, Pa.

Machinists Speak

James M. Dent, Composing room machinist of the Pittsburgh *Sun-Telegraph*, addressed the group on *The Composing Room Machinist*. Dent mentioned, "There is no difference in the problems of a small plant and a large one. A competent machinist in a small composing room must know as much as the 'guiding genius' in a large room. The only difference is in routine and planning. One machine can develop just as many cranky streaks as fifty—but not so often. But when trouble does occur, the small-plant machinist must know what to do, just the same as the big-plant man."

Speaking on the problems facing the composing room machinist, Gerald I. Fillman, machinist of the Norristown *Times Herald* said, "As all machines are kept in operation, through both shifts, daily, Monday through Friday, we never have a dark machine to work on during this period, except in emergencies. Therefore, we use as many short-cuts as possible to save down-time. To mention a few short cuts, we have a set of keyboard cams (45 and spaceband) oiled and cleaned, which we exchange in 10 minutes down-time, either front or back. The cleaning and oiling of the cams taken out is done at leisure at the bench. We also have cam rollers, mounted and interchangeable in approximately 5 min. down-time. We carry spaceband box, distributor box, second elevator bar—assembled, and similar parts which we exchange with down-time never amounting to more than 10 min."

Howard M. King of Intertype Corporation, talked about increased use of color advertising in our daily newspapers, and increased amount of color in the ads throughout the paper. He predicted, "Color 'revolution' will develop slowly in the coming months and explode in a vivid display about the end of the year. Then some 500 newspapers in all sections of the country will be equipped to print advertisements in color. Of the approximately 1000 newspaper press units on order, color printing equipment is specified for 90%."

Infra-red in Stereotyping

The Saturday afternoon session was devoted first to a discussion of the many stereotype problems facing mechanical departments today. A recent survey by the PNPA Central office was read, with John A. Feldcamp, stereotype department of the Scranton *Times* presiding.

Fred W. Lautsch, chief electrician of the Baltimore *News-Post-American*, talked on *Infra-Matic Mat Shrinking Equipment*. In explaining the use of this system, he stated, "It has been found that infra-red rays, although invisible to the human eye, can be treated very nearly the same as visible light rays. Light rays in diffusion, directional beaming and flooding with the proper use of refractory lenses and reflectors give results similar to infra-red rays but the focusing of the light source is the critical factor."

Continuing, Lautsch remarked, "Radiant heat, as produced by infra-red lamps, is applied without pressure on the mat. The Infra-matic Drier was designed to be used as a pre-shrinker in conjunction with conventional matrix former. It speeds up the drying process and eliminates the difficulties experienced with the high-shrinkage mats now used by many newspapers."

Following the stereotype segment of the program, the final session was devoted to the pressroom, with Herbert G. Taylor, assistant to the general manager, in charge of production at the Bethlehem *Globe-Times*, presiding.

Melvin L. Gebhard, Minnesota Mining & Mfg. Co. spoke of the experiments conducted by his company in developing a new tympan paper, Spherekote, and the resulting elimination of offset on the presses. Lester Yeager, production manager of the Indianapolis *Star*, then told of the success he has had using a new blanket, claiming the *Star* is now getting between 20 and 30-million impressions from each blanket.

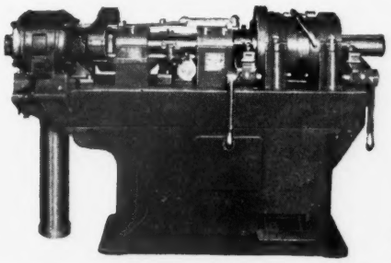
The many problems involved in *Color Printing* were discussed by C. W. Miller, pressroom superintendent of the Pittsburgh *Press*, who also brought samples of the various color ads inserted in his paper, and the remedies he found necessary to improve the printing of these ads.

Joseph Sansone, business manager of the Lebanon *Daily News-Times*, revealed the problems faced in installing a press, and R. Wayne Schrott, of the Johnstown *Tribune* and the *Democrat*, spoke on *Conserving Newsprint*.

Arrangements for the program were made by the PNPA Mechanical Committee, with Nicholas M. Fellma, mechanical superintendent of the Chester *Times*, chairman; and E. O. Daview, mechanical superintendent of the Harrisburg *Patriot-News*, as vice chairman.

DUPLEX TUBULAR FINISHING MACHINE

It takes but a few seconds for this combination machine to cut off the tail, bevel both ends, and bore the inside of the plate to correct size.



★

THE DUPLEX PRINTING PRESS CO.

BATTLE CREEK MICHIGAN

New York Chicago

Cut Make-ready costs with OPTI-CHEK

You can set up color plates for perfect register in a matter of minutes instead of hours—without use of measuring devices. Puts an end to waste of paper, cellophane, ink, etc. — No more idle presses. Made in various widths to accommodate any printing press. *Write for more information.*

H. H. HEINRICH CO.

200 VARICK STREET NEW YORK 14, NEW YORK

TINGUE, BROWN & CO.

114-120 EAST 23rd ST., NEW YORK 10, N.Y. 723 E. WASHINGTON BLVD., LOS ANGELES 21, CAL.
1227 WABASH AVE., CHICAGO 5, ILLINOIS 507 PETERS STREET, S.W., ATLANTA, GA.
CANADIAN SALES AGENTS ROSS WHITEHEAD & CO. LTD. MONTREAL, CANADA

MATERIALS HANDLING

This book by Harry E. Stocker is of vital interest to mechanical and production executives in printing and publishing plants.

While not written specifically as a treatise on materials handling in the printing plant, yet a great deal of its text will be of value in the handling of materials in the plant and outgoing shipments from the plant.

Bound in light buckram, 309 pages, many illustrations, size 6 in. by 9¼ in. Price $5.35 per copy, cash with order.

PRINTING EQUIPMENT ENGINEER
1276 West Third St. Cleveland 13, Ohio

SAVE TIME — *Do Better Printing!*

Yes, YOU CAN DO IT — WITH CHALLENGE *Hi-Speed* QUOINS

Two Style HM Challenge HI-SPEED QUOINS do the work of 4 to 8 ordinary quoins and save up to two-thirds of the ordinary lock-up time.

When necessary to lock and unlock the form for corrections and adjustments you can always bring it back to exact register with the "always clear" register indicator—a feature that puts CHALLENGE HI-SPEED QUOINS in a class by themselves and that *means better printing.*

Six handy lengths from 4½ to 12 inches — rust proof plated steel — self-contained. Write for data.

576

THE CHALLENGE MACHINERY CO.
"Over 50 Years of Precision Equipment Manufacture"
MAIN OFFICE AND FACTORY: GRAND HAVEN, MICH.

BEVERIDGE DRY MATS *are Dependable*

SAMPLES TO YOUR SPECIFICATIONS GLADLY SENT GRATIS UPON REQUEST

New Products Division

THE BEVERIDGE PAPER COMPANY

INDIANAPOLIS 4, INDIANA

60 YEARS OF PAPER MAKING SKILL

SAFETY • RELIABILITY • ECONOMY

CLINE
PRESS DRIVES
and
CONTROL
Reels, Tensions and Pasters . . .

CLINE SYSTEM

CLINE ELEC. MFG. CO.
Chicago 211 West Wacker Drive
New York 220 East 42nd Street
San Francisco 1st Nat'l Bank Bldg.

BAUM FOLDERS
RUSSELL ERNEST BAUM
615 Chestnut Street Philadelphia, Pennsylvania

EQUIPMENT FOR PRINTERS
Mitering machines • Composing sticks • Slug clippers • Band saws • Lead and rule cutters • Newspaper bases, files and racks.
H. B. ROUSE & COMPANY
2214 North Wayne Ave. Chicago, Illinois

100% AUTOMATIC SLUG SAWING
Odd measure slugs sawed to any measure as ejected from line-casting machine. Fast-accurate-economical.
MOHR SAW
MOHR LINO-SAW CO.
128 N. Union St. Chicago

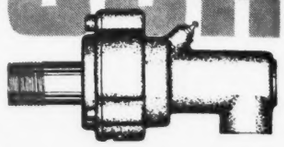
★ **STAR CUT CEMENT** ★
Since 1936 — *For Mounting* — Since 1936
CUTS...STEREOTYPES...ELECTROTYPES
65c per tube-$5.25 per doz. $5.00 per doz. in two doz. lots, $4.00 per doz. in gross lots.
★ STAR CEMENT COMPANY
45 Malone Avenue, BELLEVILLE 9, N. J. ★

For Linotype and Intertype

USED MATRIX CABINETS
48 drawer, each drawer holds 2 fonts, or cabinet will hold 96 full fonts, floor space 34"x50", or will remake into smaller sizes.
WILLIAM REID Company
2271 CLYBOURN AVE. CHICAGO 14, ILL.

RICHARDS *Since 1900*
KALAMAZOO, 13F
Saw-Trimmers, Flat and Curved Plate Routers, Stereotype Saws and Mortisers, Steel Rule Dies.
The most complete line built. See our page ad July issue or ask for catalog.

PROVED **TOUGH**



Typical Deublin Rotating Water Joints have turned over 150 million revolutions without leakage or *signs of wear!* These sturdy, long life units, used for cooling revolving cylinders or drums, were designed by printing equipment engineers especially for the printing trade. Eliminate costly "down time." See Bulletin D-10.

DEUBLIN COMPANY
NORTHBROOK ILLINOIS

Delay is Dangerous!

While You Wait . .

DUST is accumulating
FRICTION is wearing
HEAT is increasing

Blow out dust, dirt and oily fuzz with the TORNADO Portable Electric Blower. Keep motors, shafting, machinery clean—cool—smooth-running—with a tremendous blast of clear, dry, concentrated air which removes all accumulations. Plugs into any electric outlet. Produces an air stream with a velocity of 295 m.p.h.
WRITE TODAY for literature or free demonstration.
BREUER ELECTRIC MFG. CO.
5114 RAVENSWOOD AVE. CHICAGO 40, ILLINOIS

CLASSIFIED ADS — ALL CLASSIFICATIONS

RATES EFFECTIVE WITH THE MAY 1947 ISSUE
Less than 1 inch (9 lines) $.75 per line 1-9/16" wide.

CASH WITH ORDER
Count approximately 25 characters per line.

CLOSING DATE—15th of Month preceeding Date of Issue. We will forward all mail addressed to Box Numbers. When answering Box Numbered ads, address as follows: Box Number . . . PRINTING EQUIPMENT *Engineer*, 1276 West 3rd Street, Cleveland 13, Ohio.

PHOTO ENGRAVER FOREMAN

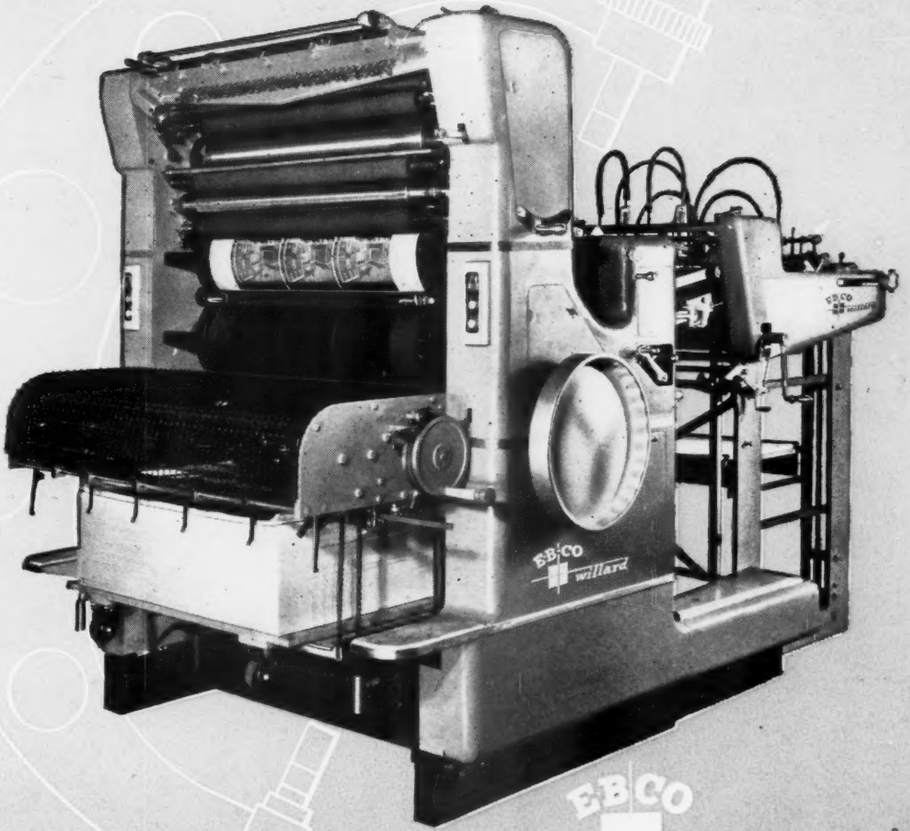
Newspaper plant opening completely new engraving shop needs services of thoroughly experienced engraver who knows all steps of producing engravings. Shop will also do commercial work. Man selected must be able to take full charge and will participate in profits. Send complete details, age, references, salary expected. Publisher can arrange housing facilities if necessary. Prefer man now located in midwest. Box No. 274, Printing Equipment Engineer.

MECHANICAL ENGINEER

with excellent record in cost reduction through printing research, desires an appropriate position with large or medium sized printing company. Box 273 Printing Equiment Engineer.

Two pressmen to operate 6-color rotogravure rotary presses. We will train men with previous experience in color work on high speed presses. Write Personnel Dept., P. O. Box 4208, Richmond, Virginia.

Operation OFFSET



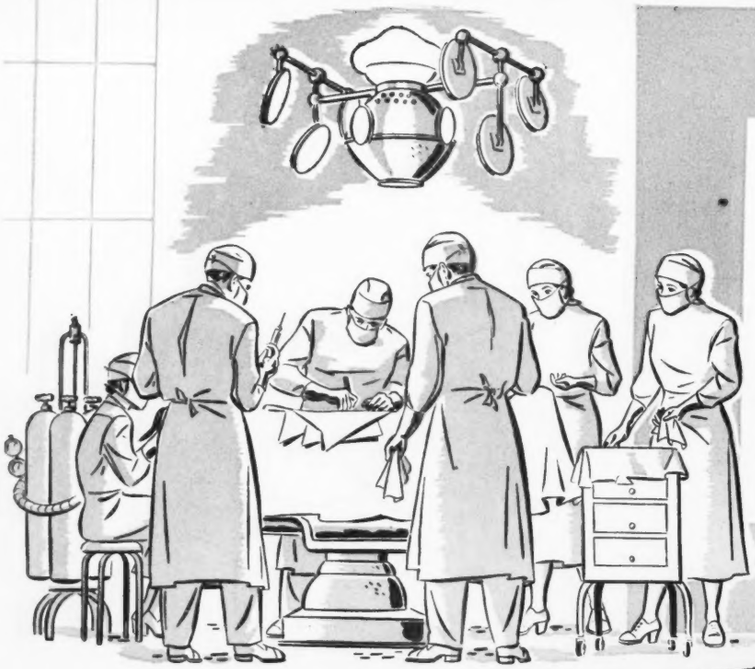
E·B·CO

FOR FULL DETAILS SEND FOR ILLUSTRATED BOOKLET. CLIP THIS COUPON TO YOUR LETTERHEAD.

Willard OFFSET PRESS

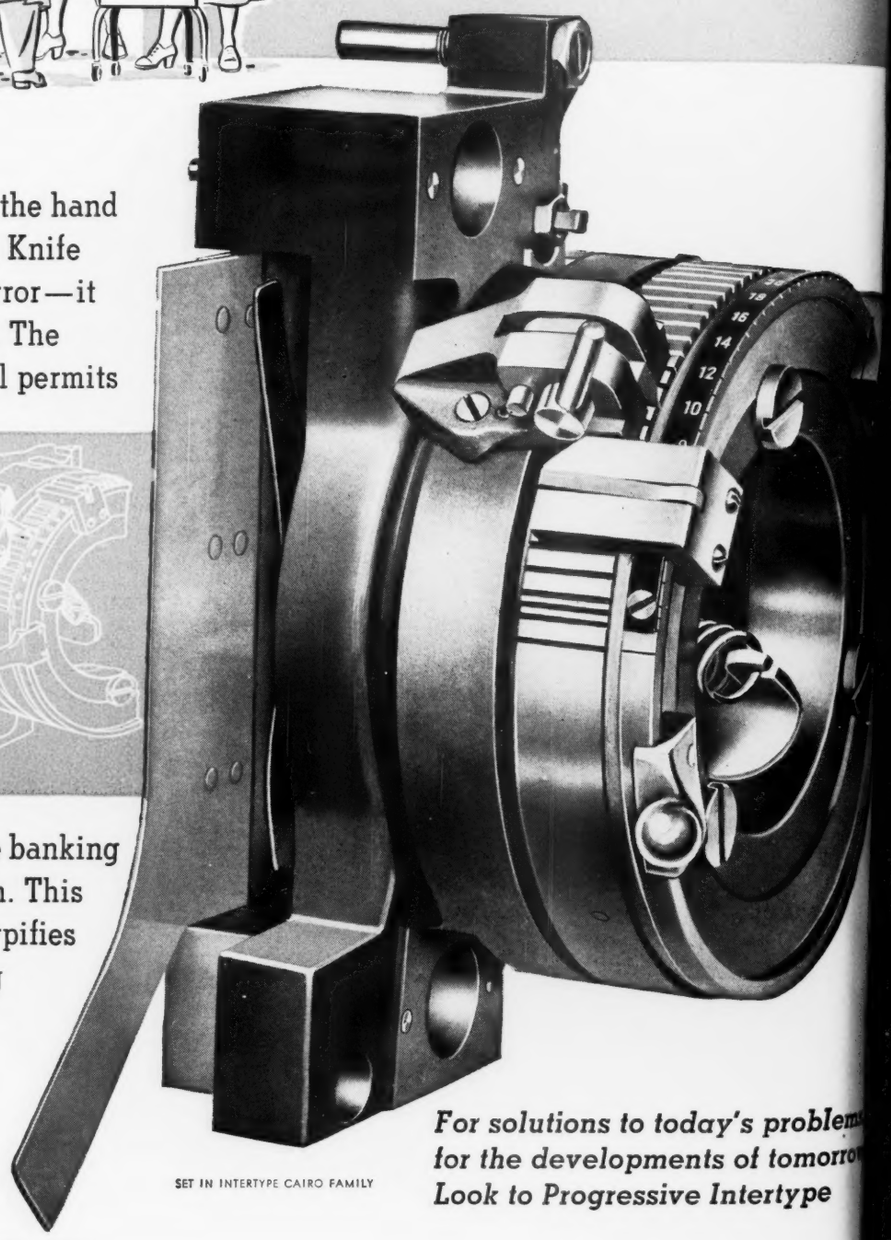
Cuts down-time for more impressions per day. Precision-built to a standard of *dependability* world-famous for 50 years.

PRINTING MACHINERY DIVISION
ELECTRIC BOAT COMPANY
445 Park Avenue, New York 22, New York



More Precise Than a Surgeon's Scalpel

A scalpel is only as accurate as the hand that guides it. But the Intertype Knife Block is not subject to human error—it operates with built-in accuracy. The large, easy-to-read, notched dial permits ready selection of slug thickness. Oversize and undersize trim to the thousandth of an inch can be set with a handy micrometer attachment. Adjustable stops allow rapid shifting between most used sizes, without even a glance at the dial. Secure banking of the knives assures parallelism. This precise adjustable knife block typifies Intertype's leadership in solving composition problems.



SET IN INTERTYPE CAIRO FAMILY

For solutions to today's problems
for the developments of tomorrow
Look to Progressive Intertype

INTERTYPE BROOKLYN 2, NEW YORK